ARCHITECTURE

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Modernism Yesterday, Today, and Tomorrow

By Rexford Newcomb

WHAT is *modern* architecture? We hear our friends talking about "modern" architecture and indeed "contemporary" architecture as though it were something *new*, as though the world had never before been face to face with the problem of interpreting into architecture a changed attitude toward life, or with the necessity of expressing that architecture in terms of new materials. To an extent, of course, the present is a unique moment in the experience of man upon this planet but, while it is true that no moment or event ever exactly repeats itself, the fact remains that, as humanity lives out its cycles of existence in this world, circumstances remarkably similar to circumstances of bygone days do recur. It is this very recurrence in the ongoing pattern of human life that makes history valuable as a guide for the present and precedent worth considering.

If one takes an historic view of life he will come to the conclusion that "modernism" has always been with us and that so long as man works at those processes which result in civilization, *will always* be with us. There have always been innovators, monkeys who insisted upon walking farther out on the limb than any monkey had ever dared walk before. This very tendency has made for all that change in the condition of man and the environment that he has created for himself which we call civilization. But there is also in man a peculiar *imitative* streak that serves as a safety-valve to too much innovation and tends to perpetuate patterns of life that have already been tested and tried. Those who delight in walking out on limbs that have never before been walked upon we call "progressives," or today in the architectural field "modernists," and those who are content to do things upon a pattern similar to that of past days we call "conservatives." This line of cleavage runs all through life and it is not surprising that architects find themselves today divided into two camps.

I think, however, that in the *normal* individual there is an interesting balancing of these two tendencies, resulting in a condition which, while it slows up what the ultra-progressive would call "progress," acts as a serviceable deterrent in the majority of the considerations of life. In the scheme of human economy we need the outer fringe of the ultra-progressives but we need also the more quiescent body of balanced individuals who keep the race from ruining itself. The historian is constantly cognizant of the fact that while events change, humans do in various times and places behave consistently like humans.

I wish we might have the time to make a side excursion into history to discover how consistently prevalent in human life and its manifestations has been that spirit which we today call modernism. We should meet such worthy architectural innovators as old Imhotep of Egypt, the designers of ancient Assyria, Persia, Greece, and Rome. We should come to know Allan of Walsingham, William of Sens, Brunelleschi, Leonardo da Vinci, and a host too numerous to mention. We have had architectural innovators since the beginning of the art and it is largely to their daring that most of the *change* (witness I do not say progress) is to be attributed. There were innovators in Greece who transformed the archaic wooden and sun-dried brick temples of Hellas into shrines of polychromed white Pentelic marble; innovators in Rome who, through the invention of an arch, raised vaults and domes of masonry above some of the most magnificent enclosed spaces that the world has ever seen, and turned the courses of rivers into the fountains and basins of the great metropolitan bathing establishments; innovators in France who dared give us the paradox of roofs of stone above walls of glass;

A conservative expression in concrete. The ornament was all cast integrally with the construction. Norton Memorial Hall, Chautauqua, N. Y. Otis F. Johnson, architect

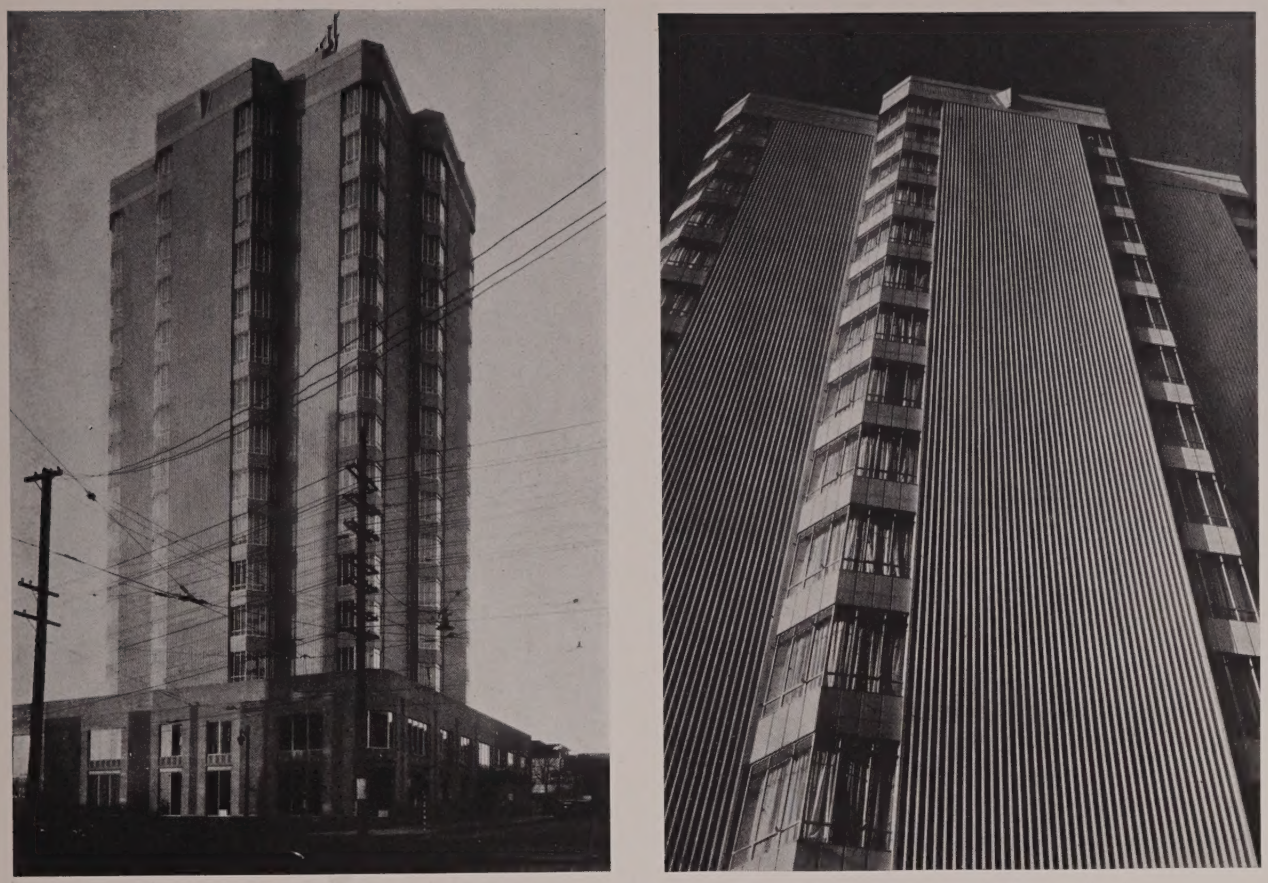
Brunelleschi, that early innovator of the Italian Renaissance, who, through the introduction of a material strong in tension to take up the lateral thrust always present in arched structures, was able to set an unbuttressed dome atop the Cathedral of Florence. And so it has gone down to our day, by an empirical process; the innovators little by little have conquered their environment and ushered in forms and manners that their more conservative neighbors thought ridiculous and unlovely.

But what factors occasion changes in architectural expression? While changed conditions in the social, economic, political, and religious orders of life make for a gradual change in art expression, the phenomenal changes in architecture come about through:

1. The introduction of *new* materials.
2. Changes in the handling of an *old* material.
3. A changed system of construction made possible by an introduction of new materials.
4. New inventions (like electricity and the elevator) which markedly affect construction processes and architectural form.

Perhaps without exception all the great styles of the past have been made possible by, or were based upon, either a *new palette of materials* or a *new system of construction.*

In many respects the task that confronts us today, the problem of using a whole new palette of materials and at least two new systems of construction (steel and concrete), is not unlike the artistic task which the Gothic architects of Ile de France faced at the middle of the twelfth century. Ever since the downfall of the Roman Empire in the west, they had striven again to be able to erect over the altars of their religion an imperishable vault of stone, like that which the Roman architects so well knew how to construct during the Imperial Period. By 1145 they had succeeded in reaching a logical and craftsmanlike solution of the *structural* phases of the Gothic system but the vaults were heavy and graceless, the buttresses clumsy and brutal, and the piers and shafts anything but beautiful. The *mechanical solution* was at hand, the *structural*



A recent construction in monolithic concrete with no reference to past styles, and entirely dependent upon the limitations and possibilities of its material for any architectural charm it may possess. Edmond Meaney Hotel, Seattle, Wash. Robert C. Reamer, architect

technique was perfected, but an adequate and logical *esthetic* expression thereof still remained to be found.

The story of the search for the beautiful in Gothic architecture is a fascinating one but one that is familiar to the architectural profession. We need not repeat it. It was, however, just as real a problem and one quite as elusive as had been the conquering of the constructive phases of the style. It took a hundred years to solve it, and that in the face of the fact that for centuries man had been building in stone and had by this time presumably mastered his material.

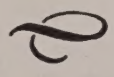
Today, of course, we face a variety of materials and an infinity of constructive systems the like of which no previous period ever encountered. Added to this is a constantly changing array of mechanical inventions that affect construction practice and modify architectural form. Thus an adequate esthetic for so fluid and changeful a body of architectonic materials is not as yet possible, and every architectural essay must in such a flux period be considered only in the light of a "progress report" in an evolution toward an adequate artistic interpretation of these new materials and new systems.

Added to these material considerations are the less tangible social, economic, and other human processes that are at work and about which the average architect knows very little and apparently cares less. Of course it is always difficult to get the pulse in so fluid a period, but if I have any guess as to the trend that foremost architectural thought in this day is taking I would say that it is tending toward a new horizon that will have to do more and more with the social and human factors and less and less with questions of abstract design; more and more with the problems of catching and expressing the tenor of modern life and thought, and less and less with archæological argument and stylistic considerations. Of course the ability to express life in terms of architecture depends upon a mastery of the means to that expression. Our problem therefore resolves itself into two major considerations:

1. That of trying to find out what this rapidly changing modern life is all about.
2. How best we may interpret that life in terms of the available materials.

These remarks may give you a clue to the criteria by which I believe we should judge modern architecture, and in fact I see no reason why we should not use such measuring sticks in the evaluation of all architecture, ancient or modern.

In my estimation an architecture that does not completely minister to life (physically and spiritually) is not worthy of the name. An architecture that ministers to life is a functional architecture; an architecture that attempts to express in plan and mass the activities of life that take place within its walls and beneath its roof; an architecture that cares little for archæological precedent and stylistic form but seeks to fashion whatever beauty it may express within the limits permitted by its function and the materials of which it is built; an architecture that is sincere, plays fair with the life which it shelters, and plays fair with the substance of its creation; an architecture which meets its problems in a simple, direct, and craftsmanlike manner and does not seek to imitate so-called modern forms from other lands or strive for an empty and stilted originality; an architecture that plays fair with precedent, retains that which is current and valuable, and discards that which is outworn and meaningless; an architecture which is not so much concerned with being "modern" as it is with being serviceable, honest, and true. Are these not fair criteria by which to measure the architecture of a new day?



I presume that I should say something about the materials of modern architecture. Perhaps the architectural substances that have most saliently influenced modern design are the metals—particularly steel—glass, and concrete. This problem of seeking an architectural expression in these materials is not so new as some of us assume. It goes back about one hundred years, and dates from the early attempts of Henri Labrouste and his confrères to give iron a place in the esthetic of architecture. His success in the Library Sainte Geneviève and the Bibliothèque National in Paris was considerable. The début of glass in any large way practically dates from the construction by Sir Joseph Paxton of the famed Crystal Palace, erected for the London Exposition of 1851.

During the 'sixties great progress was made in the technical development of cast- and wrought-iron building shapes, which in turn made for their artistic employment, but metal did not much influence building construction until the perfection of manufacturing processes made possible the production of steel that was cheap enough to be used as building material. This significant event took place in 1884, and architects of the city of Chicago made substantial contributions in the structural application of that material to architectural problems.

This all resulted in the metallic frame embodying a new and unique system of construction and a new structural logic. This has been with us for some years, but we have not as yet completely solved the esthetic implications that came in the wake of this structural development. We are making progress, but one of the present-day problems of the architectural designer consists in finding a logical and defendable esthetic for the steel frame.

Concrete is another material that offers a unique challenge to the creative architect of today. Portland cement has been upon a commercial production basis since about 1890. During the past thirty years engineers and inventors have explored the physical and chemical problems connected with it and have provided us with the mathematical equipment necessary to intelligent structural design and a technique for handling this valuable medium for architectural expression. As yet, however, we as architects have done little toward the solution of the esthetics of the material or the systems of construction to which it has given rise. For the most part we have been content to use concrete as the bony substance of our buildings, covering it with various materials and refusing even to mention it upon the face of the structure. Now this is perhaps not to be wondered at. The artistic employment of any new structural material invariably lags behind the perfection of the mechanical technique connected therewith. This is inherent in the very nature of such problems.

There has been a good deal of mixed thinking about the nature of concrete. For a long time it was thought of as "fluid stone" and often treated as stone even to the extreme of using it to make rock-faced concrete blocks. *Concrete is a plastic*, but is not a plastic like clay or wax, to be modelled into place. Its plasticity consists in its ability to be *cast* into practically any shape necessary to or encountered in the building art. In my estimation *here lies its greatest artistic value.*

Willing to take almost any shape, it, unlike many other materials, is impressionable when young but stubborn and difficult to change

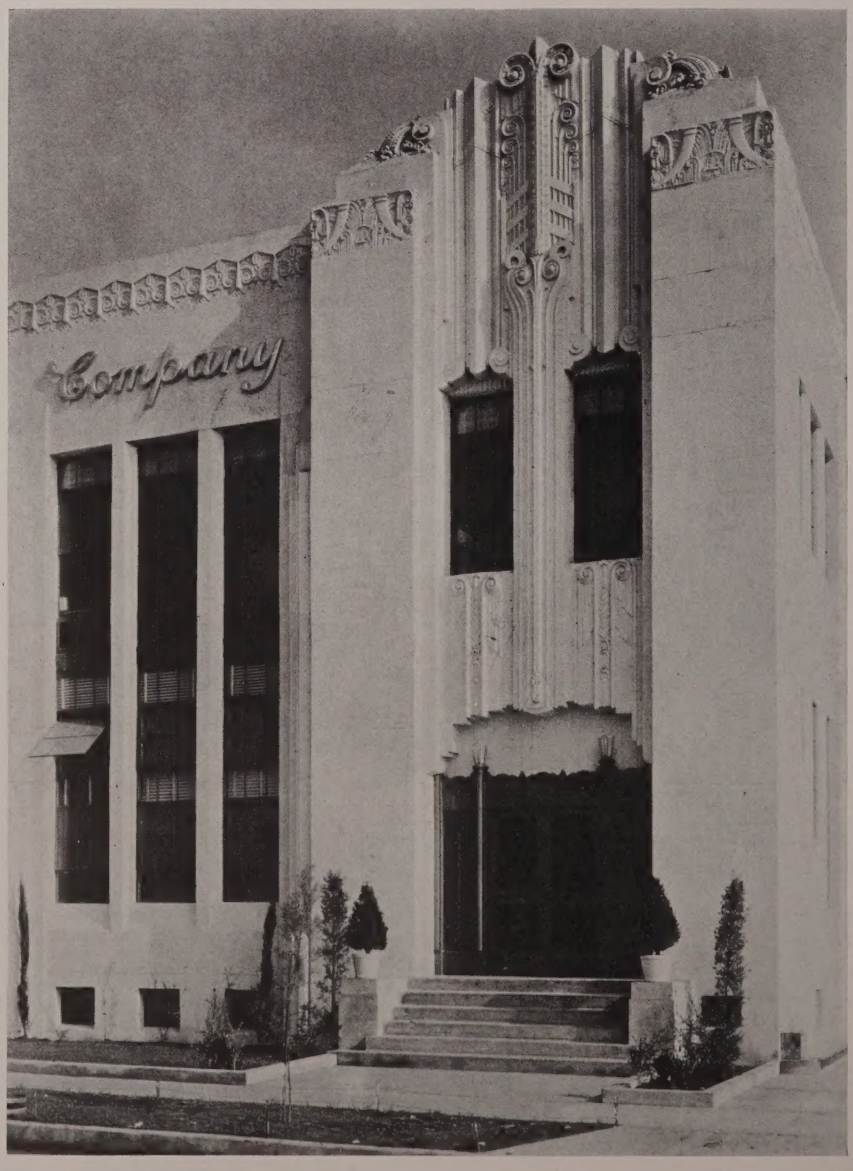
A sensible and beautiful rendering of the functional steel members. Concourse of Union Station, Chicago, Ill. Graham, Anderson, Probst & White, architects

when once set in its way. When set up it has a crystalline quality not unlike stone, and therefore should not be cast as one would cast lead, iron, or other such plastics. Some one has said that "Concrete is stone, yet *not* stone." In essence it is a plastic that petrifies—becomes stone. This eventual granular character, and the necessity of "pulling" the moulds or forms from its surface, must always be kept in mind during its design.

Thus we might go through the whole gamut of that infinite variety of architectural stuff in which we are trying to express ourselves. Most of us have little first-hand knowledge about these materials we are expected to use. Thus today we see materials perfectly good and noble in themselves imitatively tortured into something which they are *not*, simply because of our inability to sense their possibilities and limitations—the physical and esthetic natures of them. Thus excellent rubber floor coverings masquerade as marble, good plaster palms itself off as stone, clever pressed-steel doors, desks, and cabinets claim to be mahogany, pressed enamelled steel sheets simulate ceramic tiling, and concrete attempts to finesse itself as cast stone with mouldings, undercutting, and the other earmarks of stone that has been worked with the chisel.

At a recent convention of material men I advocated the establishment of "esthetic laboratories," in which architects and other designers might have the opportunity to get first-hand experience with materials. The designer is today too far removed from the craftsman. Further, it seems to me that if it is essential to have laboratories for the study of the esthetics of materials. One fact is plain. We shall never succeed in forming a modern architecture until we master the esthetic of the materials in which we work.

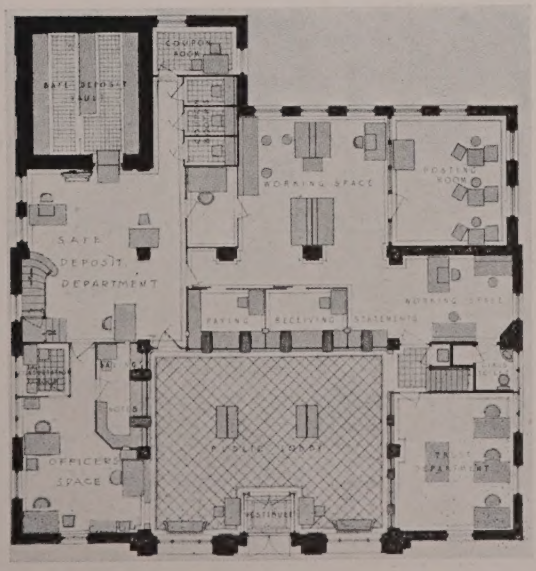
Esthetic solutions are slow-going processes, and we may not expect to solve immediately all the problems connected with our art, but we are expected to bring to the practical and artistic tasks before us the same creative ingenuity which has characterized forward-looking and rational architects down through the ages. If we do this, in time a new architecture, as assuredly predicated upon the living considerations of our day as the great past styles were predicated upon the material and spiritual backgrounds of their time, will come into being. We do not need the materials or the forms of the past but we do need the creative daring and courageous attack of the architects of other days!



Monolithic concrete with ornament cast integrally by the use of waste moulds. Hoffman Candy Company Building, Los Angeles, Calif. Charles F. Plumber, architect

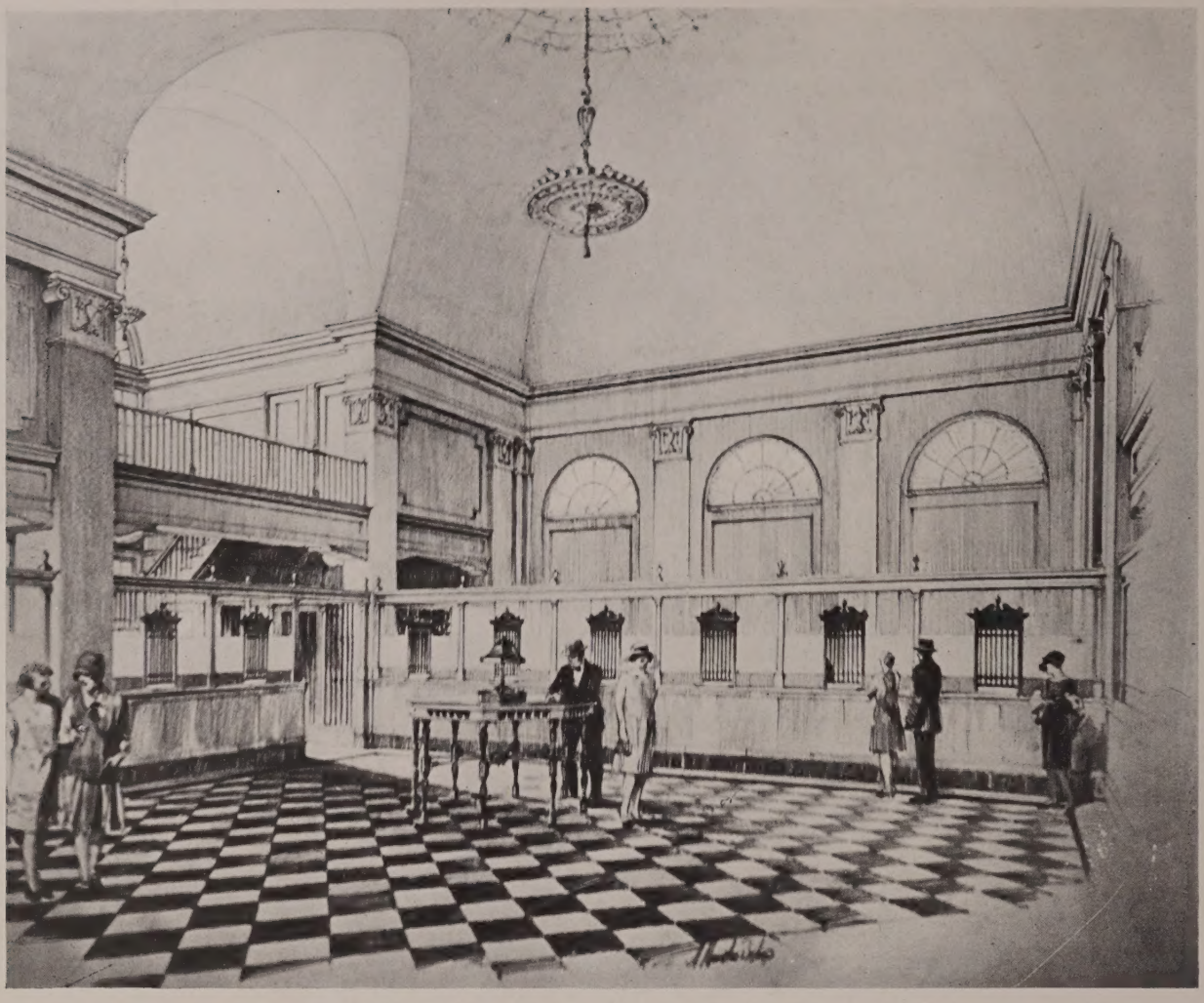
First National Bank, Amherst, Mass.

LESTER KINTZING, Architect



The walls are of red brick with Bedford limestone pilasters and cornices, granite base course, and graduated slate roof; windows are of wood, painted to match the stone. The building was erected, furnished, and decorated by Hoggson Brothers

As befitting a community of New England in which the architecture is rather consistently of a single type, the building is an individual one following Colonial traditions, but, bowing to modern requirements, strictly fireproof throughout

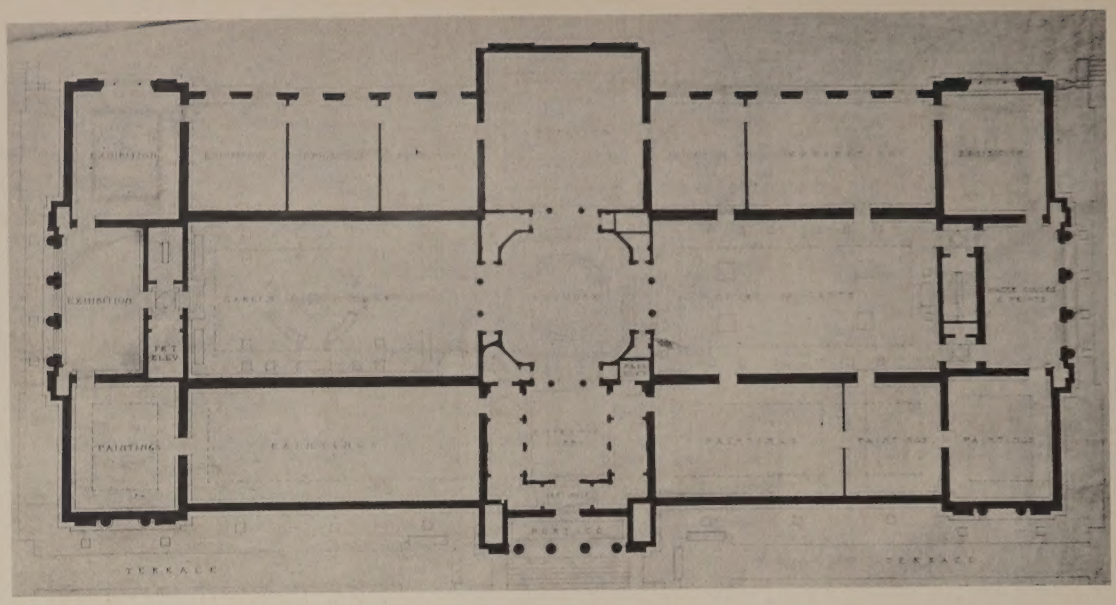


Above, the architect's preliminary perspective of the main banking room. Below, the public space of the main banking room as executed. The wall surfaces, pilasters, and vaulted ceiling are painted an old ivory, the ceiling being of a lighter shade than the walls. The floor is of Tennessee marble, the counter screen being of marble with a maple top screen and bronze wickets

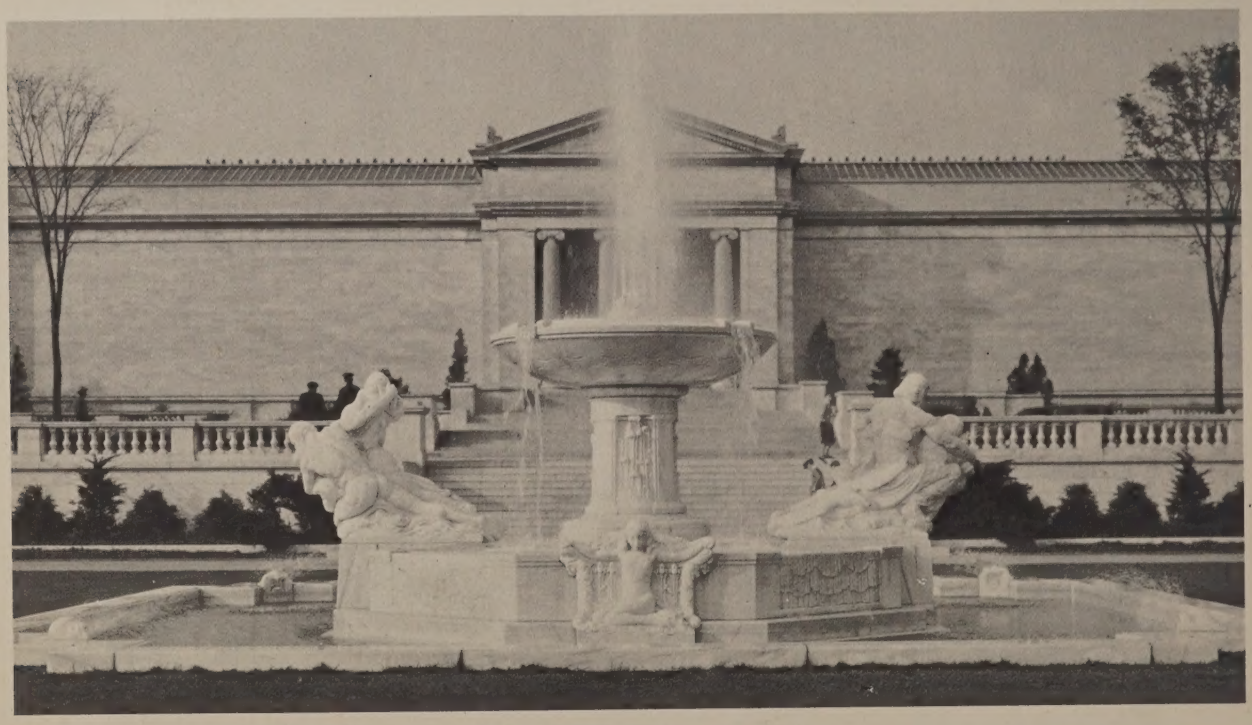
Cleveland Museum of Art, Cleveland, Ohio

HUBBELL & BENES, ARCHITECTS; OLMSTED BROTHERS, LANDSCAPE ARCHITECTS

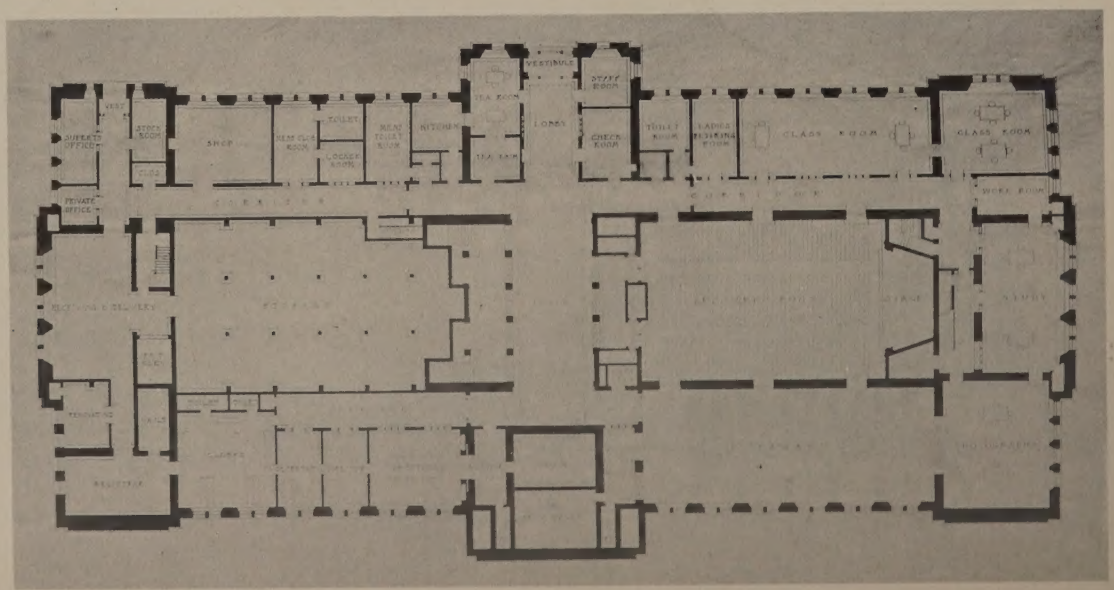
Photographs by The Cleveland Museum of Art



Plan of first floor



The Fountain of Waters; Chester A. Beach, sculptor



Plan of ground floor

White Georgia marble has been used throughout for the exterior walls, recalling the best materials of Classic Greek work, and proven as enduring under the rigorous climate of Cleveland. As will be seen in the plans on the opposite page, the scheme of providing two main entrances, one from the driveway on the ground floor, and the other by the steps from the garden on the first-floor level, is of great aid in handling crowds

A detail of the fountain in the Garden Court

The motor entrance at the ground level

A view across one end of the museum

Looking from the Garden Court into the rotunda and beyond to the Armour Court

The Garden Court, the walls of which are of common brick, the columns being of granite brought from Italy

A detail of the Garden Court as seen from the loggia end—the end opposite the rotunda

The Armour Court, the walls of which are finished in Cleveland sandstone

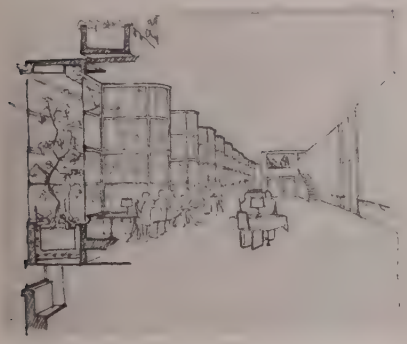
A detail of the Armour Court, looking through the entrance from the rotunda

The Library, which is on the ground-floor level, adjoining the lecture room

Below, a classroom—the one located on a corner of the ground-floor level

The Architectural Observer

HERE is a clever idea as worked out in a restaurant in Frankfort-on-Main—the Palmengarten, of which Elsässer, May & Hebebrand were the architects. The long south wall is entirely given over to a con-



tinuous plant window. This, due to its projections, forms pleasant interior niches, each of which is surrounded on three sides by glass and growing plants. Throughout most of the day the room is flooded by sunshine with pleasant variations of light and color.

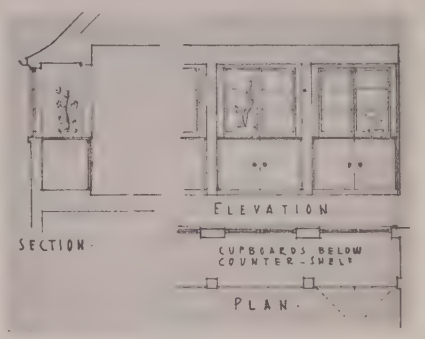
THE problem of controlling light satisfactorily as it comes through large windows is one that has seldom been solved to the designer's complete satisfaction. The illustration shows a model office in an exhibit, "Interiors of Tomorrow," arranged by McMillen, Inc., interior decorators. Instead of fabric curtains of any type, which seemed rather difficult to reconcile with a functional office interior, the decorators used vertical vanes of polished aluminum. Cords control these, both at top and bottom, so that the window may be entirely closed or only partly so. In addition, it is possible to deflect the vanes at any angle so as to reflect light into the room instead of allowing it to come through directly in too great volume.

A POOL in the Century of Progress Exposition, appearing in the garden of the Communication Centre, shows a new development in the technic of decorative terra-cotta. Voorhees, Gmelin & Walker, architects; Hildreth Meière, painter; and the Atlantic Terra Cotta Company's

technicians collaborated in working out a method of transferring designs in ceramic colors by which effects similar to mural painting can be easily and economically obtained. Modeled reliefs, heretofore necessary to enable the polychromist to separate his color effects, are no longer necessary, nor is it essential in the interests of economy to use duplication of design.

The silhouetted figures, symbolizing the spirit of electrical communication, are in a rich deep blue glaze against the background of an Oriental green; the latitudinal and longitudinal lines of the globe are in ivory white, only one-eighth inch in width. The pool is almost twenty-two feet in diameter, and this pictorial composition is under eighteen inches of water.

VOLKART & TRUDINGER, architects of Stuttgart, found an interesting way of keeping their roof lines lower than the second-story ceiling without making those who use these upper rooms uncomfort-



ably aware of the fact that the outer portion of the ceiling height had been cut down. The effect of the deep reveal in the windows, and the practical consideration of cupboard space gained, are details worthy of emulation.

VARIOUS writers on interior decoration have called attention to the difficulties imposed upon the designer by the fact that daylight illumination provides light from the windows, while night illumination customarily utilizes an entirely different set of sources. In the General Electric Lighting Institute at Harrison, N. J., an attempt was made to overcome this difficulty by locating

the artificial light as a frame around the window openings. This particular example was a part of a temporary installation designed by the engineering staff of the General Electric Company, and details for a permanent feature of this kind have not been fully developed. It would seem easy enough, however, to devise a shallow metal box in place of the trim, painting this with flat white inside, and covering the open face with the proper kind of translucent glass. Here the box was seven inches wide by eight inches deep, with the lighting of fifteen-watt lamps on six-inch centres. Relamping is accomplished by moving the strip at the side of the glass. The glass here is flashed crystal and opal separated and held in place by narrow metal binding strips.

THERE are not many examples of true sgraffito work in this country, but here is one example which W. R. Yelland has developed

for the exterior of a public school in Oakland, Calif.

The running floral design is in dull blue, rose, and brownish red. When the building was about ready for its sgraffito work funds were running low. Rather than give up the scheme, the architect selected the best of the plasterers, and went at it with him. The plasterer performed the actual work, while Mr. Yelland outlined the design on the wet plaster, working freehand as the work progressed. The base is of hollow tile; over a base coat of stucco the various colors were applied in thin smooth layers, and cut through to the color desired.

On the pediment end a thin dash of stucco covers the wall of hollow tile with the additional colored plasters laid over this for the sgraffito work.

THERE is no lack of ingenuity and inventiveness on the part of America's restaurateurs to provide unusual surroundings for their guests. In contrast, however, with the too frequent attempts to be startling and bizarre is the course followed by Schrafft's in one of its Fifth-Avenue stores in New York. An upper floor of the building has been remodelled—as nearly as structural conditions permitted—as an exact reproduction of the Alexandria Room in the American Wing at the Metropolitan Museum of Art. The theme has been carried out even to the details of furniture, silver, and china. The work was done under the direction of Charles E. Birge, architect.

IN altering an old store building at Wuppertal, Hans Becher, architect, divided his high ground-floor space to add a mezzanine. The masonry wall supports were removed, and steel substituted. Enclosing the mezzanine, the continuous, cantilevered, and projecting glass band serves to light the new mezzanine exhibition space, also the signs by means of night illumination inside. Incidentally, being accented horizontally, this band distracts the eye from the axial discrepancy between the openings on the first and second stories.

Charles Adams Platt

1861-1933

AN APPRECIATION BY ROYAL CORTISSOZ

TO spend a long life in the creation of works of beauty, to care unswervingly for the things of the spirit and the mind, to wake the love of innumerable friends through the promptings of a generous heart—to do all this is surely to fulfill a high destiny. Such was the achievement of Charles A. Platt. He was an artist in the very core of his being. Upon his personality and upon his work there was ever a gracious accent, as of one to whom a lofty standard came, in the old saying, as natural as breathing. He was a traditionalist, turning to the lessons of the past with unhesitating confidence. But never was there an artist who more decisively proved that tradition may energize progress and lead to essentially modern accomplishment. His superb Hanna Building, in Cleveland, is based in its broad lines upon a Renaissance palazzo but it is accurately adjusted to the uses of commerce, and the adjacent Hanna Theatre is one of the structures in this country in which the practical problems involved in a building of the kind are perfectly solved.

That was like Platt. He designed from within outward. He looked first to his plan and then made the façade an expression of its purpose. He knew all about "functionalism" long before the modernists began to use the term. When he designed the beautiful Freer Museum, in Washington, he made it not only a monumental work externally but gave it a fairly unique status in matters of lighting, the arrangement of rooms, corridors and so on. He leaves behind him the drawings for the vast National Gallery, projected likewise for Washington. Their realization in stone will give to the United States a fabric devised only after exhaustive study of the principal museums of the world and a sifting of the concrete issues that belong to the installation of works of art. Platt was a constructive architect, if ever there was one, for whom a public building or a private house had to have organic life.

Charles A. Platt died September 12 at his summer home in Cornish, Vt., after an illness of six weeks. Born October 16, 1861, his early training led to the study of painting and etching. His landscapes were in the Paris Salons of 1885 and 1886 and various important medals and awards came to him. Returning to America in 1887, after studying at Julian's under Boulanger and Lefebvre, Mr. Platt became interested in landscape architecture through his brother, trained at Harvard. Together they went abroad to see and study the great gardens. One result was Charles Platt's book, "Italian Gardens," published in 1894. Through his landscape work he gradually came to focus most of his efforts upon architecture. Though many monumental works have come from his hands—the Freer Art Gallery, University of Illinois buildings, Astor Court apartments, and many others—he will be remembered best by his country houses. He designed well over a hundred of these, and each bears that indefinable something, closely knit with restraint and suave grace, that was Charles A. Platt.

The words of appreciation by Royal Cortissoz appeared as an unsigned editorial in "The New York Herald Tribune," September 15.—EDITOR.

It is as an architect that he is most widely known, but to look back over his fruitful career is to see upon how many adventures his artistic passion launched him. He was one of the founders of the American school of etching, producing many plates in his earlier years, plates marked by a firm, fluent line and by excellent composition. Only last winter an exhibition at the Century Club, summarizing the work as a landscape painter that coincided with and followed upon his work as an etcher, demonstrated again his technical ability, his sensitiveness to nature and to beauty, and his original charm. His book on the enchantment of old Italian gardens was the first on the subject to appear in this country, and on turning from the brush and needle he figured as a consummate master of landscape architecture. Platt, in a word, could do anything that an artist could do. The Lowell fountain back of the New York Public Library, for example, is a testimony in its dignity and grace to the ease with which he could deviate from the ordinary path of the architect and develop a sculptor's aptitude.

He has left a noble mark upon American art, one significant of taste, of refinement, of pure beauty. He had creative power and used it with remarkably balanced judgment. Of his traits as a man those who knew him will cherish grateful memories. There is an old designation that comes to mind from out of some byway of Stuart literature, "Carluccio Dearest." It belongs to Charles Platt. He will be remembered through his works. He will be remembered for the endearing manner in which he served as president of the Century Club. He will be remembered for his unselfish labors as president of the American Academy in Rome, labors directed with intense solicitude to the allying of young talent with an inspiring ideal. He will be remembered also as "Carluccio Dearest"—kind, gentle, good, a man to tie to and to love.

BOOK REVIEWS

HOUSES OF STONE. By Frazier Forman Peters. 163 pages, 8½ by 11 inches. Photographs from drawings and photographs. Westport, Conn.: 1933: Frazier Forman Peters, Inc. $3.50.

The author, who is his own publisher for this book, has been building houses in Connecticut for some years. He believes in stone walls, and takes considerable space in his book to explain the difference between the traditional stone wall, the veneered stone wall, and the Flagg stone wall. Starting with Mr. Ernest Flagg's system, Mr. Peters has developed certain modifications of his own along the lines of economy of erection.

ALL THE WAYS OF BUILDING. By L. Lamprey. 304 pages, 7 by 9¼ inches. Illustrations from drawings. New York: 1933: The Macmillan Co. $3.50.

Here is a book written for children—the story of man as a builder throughout the ages. It is intended for the child of twelve years or over, but considering the present knowledge of architecture on the part of laymen generally, we would suggest that it would be an excellent book for one to persuade the less informed layman, or his wife, to read aloud to the children.

THE CARILLON. By Frank Percival Price. Preface by Herbert Austin Fricker. 228 pages, 37 plates, 6½ by 9¾ inches. Illustrations from drawings and photographs. Printed in Great Britain. New York: 1933: Oxford University Press. $7.50.

The progressive march of the carillon has been one of the interesting elements in ecclesiastical, educational, and monumental architecture in this country. The author, who is carillonneur for the Dominion Government at the Houses of Parliament, Ottawa, Canada, and who formerly was carillonneur at the Laura Spelman Rockefeller Memorial Carillon in New York, has filled with this book a real want in the literature of music and of architecture. The work is for the student carillonneur and for organizations contemplating the installation of the carillon, and is full of little-known facts.

STANDARDS AND SPECIFICATIONS FOR METALS AND METAL PRODUCTS. Prepared by George A. Wardlaw, under the direction of A. S. McAllister. 1359 pages, 7¾ by 11½ inches. Illustrations from drawings and photographs. Miscellaneous Publication No. 120. Washington: 1933: U. S. Department of Commerce, Bureau of Standards. $3.

The Bureau of Standards offers this encyclopedical volume covering nationally recognized standards relating to the metals as adopted by the industry in its many branches. It covers not alone the standards and specifications, but methods of testing, analyses, heat treatment, and the like.

WIND PRESSURE ON A MODEL OF THE EMPIRE STATE BUILDING. By Hugh L. Dryden and George C. Hill. 31 pages, 6 by 9 inches. Illustrations from drawings and one photograph. Research Paper No. 545. Pamphlet binding. Washington: 1933: U. S. Department of Commerce, Bureau of Standards. 5 cents.

DEBT AND PRODUCTION. The Operating Characteristics of Our Industrial Economy. By Bassett Jones. 147 pages, 6¼ by 9¼ inches. Illustrated with graphs. New York: 1933: The John Day Company. $2.50.

The profession knows Bassett Jones as an authority on elevators and other things. Coming to the conclusion that the literature of economics, as applied to our present-day problems, does not fit the case, he has undertaken to set down certain facts. As might be expected of an engineer, Mr. Jones is dissatisfied with words as such. There are about twenty-two thousand of them in the English language, most of which may mean almost anything one takes them to mean. Therefore, Mr. Jones writes in mathematical formulae rather than in words. Moreover, he courts no argument. He says that either the statistics employed by him or his method of analysis may be fundamentally in error—in which case it is a matter for proof, not for argument.

PRACTICAL ENGRAVING AND ETCHING. A Book of Instruction in the Art of Making Linoleum Blocks, Wood-Engravings, Woodcuts Made on the Plank, Etchings and Aquatints. By E. G. Lutz. 248 pages, 5 by 7¼ inches. Illustrations from drawings. New York: 1933: Charles Scribner's Sons. $2.

E. G. Lutz has proven in many books his ability to teach through the printed word. In the present volume he makes clearly understandable the cutting of linoleum or wood blocks, and the technical processes of etching and aquatint. His own drawings leave no step of the various processes in doubt.

INDUSTRIAL LIGHTING. Part 1, Docks, Warehouses and Their Approaches. By J. S. Preston. Illumination Research Technical Paper No. 14. 34 pages, 6 by 9½ inches. Illustrations from graphs and photographs. Pamphlet binding. Printed in Great Britain. New York: 1933: His Majesty's Stationery Office (The British Library of Information). 20 cents.

THE REDUCTION OF NOISE IN BUILDINGS. Recommendations to Architects. By Hope Bagenal and P. W. Barnett. Building Research Bulletin No. 14. 29 pages, 6 by 9½ inches. Illustrations from drawings. Pamphlet binding. Printed in Great Britain. New York: 1933: His Majesty's Stationery Office (The British Library of Information). 20 cents.

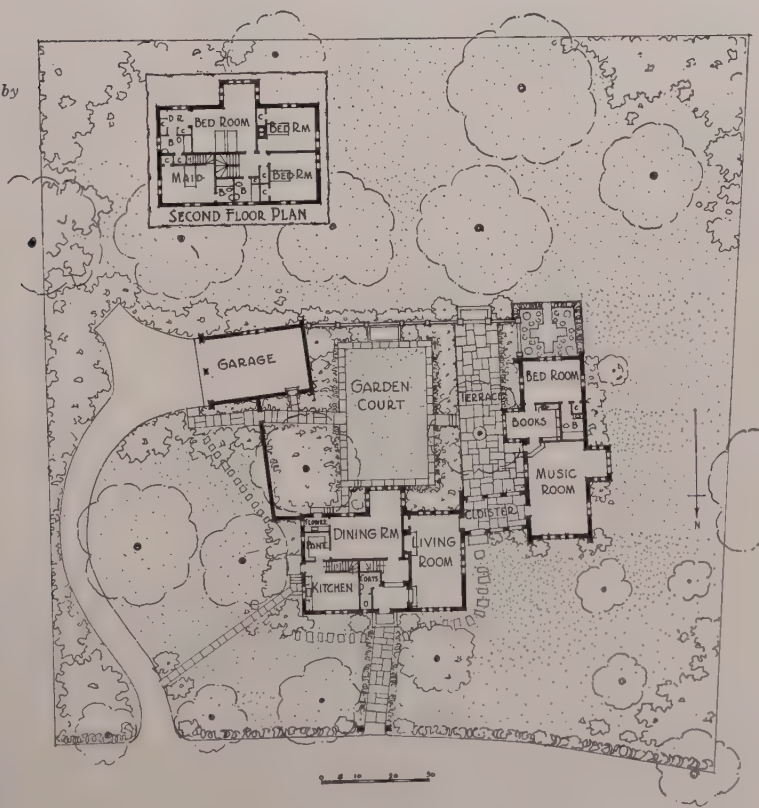
The house from the west, with the music-room end in the foreground

House of Alfred Hopkins, Architect, Princeton, N. J.

Photographs by Robert Tebbs

ELLEN SHIPMAN

LANDSCAPE ARCHITECT



As the plan shows, the house is in two rather distinct parts joined by a cloister. In addition to the main house, the studio contains the music room and Mr. Hopkins's quarters. The garden wall to the east, the end of the garage, and a low wall to the south, complete the enclosure for the garden court. The terrace to the west of this court is several steps above the garden, slightly above the music-room floor, and a step above the living-room floor

South end of the studio building and the low wall enclosing the garden. On the exterior Mr. Hopkins has used limestone four inches thick backed by cinder block. This limestone is in a mixture of channel-face and shot-sawn slabs, giving variety of texture and color

South end of the studio building, as seen from across the garden court. There is a small lily-pool visible in the lower left corner of the photograph

The terrace, which overlooks the garden to the right. In the distance is the cloister joining the two buildings. A graduated heavy slate has been used for the roofs

Looking across the south end of the garden toward the end of the garage. Pigeons have made their home in the loft prepared for them, and add to the Old-World character of the place

The front entrance from the east. In view of the size of the property and the location of the existing trees, Mr. Hopkins gave up the debatable advantage of leading the driveway entrance to or near the front door, as may be seen from the plan

The garden gate in the east wall near the garage. A free translation of the inscription would be: "To every bird its own nest appears the most beautiful." This and the capping of the wall are of cast stone

Mr. Hopkins has achieved a remarkable unity in his stone work, even though the exterior wall is of limestone, and the mullions and trim are of cast stone. The latter were made by a wax-mould method which avoids any suggestion of a moulded product. The gutter and downspouts are of lead-coated copper

North end of the studio, with the windows of the music room. The raking light brings into relief the texture of the stone work, and indicates that it was not alone through a choice of cutting, but also through judicious setting, slightly out of the plane, that the great charm of the wall was obtained

The south end of the music room, showing the doors leading (left) to the terrace, and to the book room. The organ loft is over the latter room, and the sound enters through a wood grille in the book-room ceiling

The dining-room. Here limestone was used for the inside facing

Throughout the interior, Mr. Hopkins has sought a feeling of masonry structure rather than the usual plaster veneer. These walls are of cinder block, painted a very light buff with a cold-water paint. The stone of the fireplace is all cast

The doorway leading from the music room to the book room. In the former the walls are of cinder block, painted, but any sense of coldness that might be expected from this is dispelled by the warmth and intricate design of the plaster ceiling, tinted ivory and antiqued

The breakfast bay, forming an ell in the dining-room, and giving an intimate view of the garden. The moulding and carving of oak in the doors and ceiling beams are the more effective for the foil of stone walls. In the interior decoration the Hutaff Studios collaborated with Mr. Hopkins

Rake, Riser, and Tread: I

A PROPOSED SOLUTION OF THE STAIRWAY'S ETERNAL TRIANGLE

By Jamieson Parker, A.I.A.

IT seems a curious fact, when one thinks of it, that in prehistoric times man solved one mechanical problem with such perfect success that in all the centuries since—including our admittedly clever twentieth—he has never bettered his invention. The stairway remains our best device for moving the human body, by its own effort, from one level to another.

Two other means of ascent and descent, the ladder and the ramp, are probably of equal antiquity, but they both actually are special cases of the stairway adapted to their special conditions. Stairways proper are inclined at angles varying from about 8° to 48°. Below 8° the ramp is more practical, and as steepness increases above 48° the stairway gradually becomes a ladder.

Even more remarkable than man's contentment with a mechanical device so extremely ancient is his apparent lack of desire to find out anything about it. Through untold ages he has stumbled up and tumbled down, skinned his knees and broken his bones, using stairways which somehow seemed wrong; but, whatever he may have discovered in the past about stair proportions, his total present knowledge of the subject seems to be summed up in three arithmetical rules, each supposedly containing the secret truth, each giving a widely different set of answers, and each, if taken seriously and followed, capable of producing stairways of worse proportions than common sense will allow.

Both laymen and architects know that stairways are comfortable or uncomfortable, safe or dangerous, depending on their design, which, like other kinds of design, includes first, basic form, and second, detail. The basis of form is the proportion of tread and riser. The treatment of details, such as size and shape of nosings, materials used, handrails and methods of construction, is an important part of the subject; much could be written on these matters, and it happens that a good deal of useful information on them is now available. But this article has in view the far more neglected question of proportions—their functions, usual methods of calculation, and possible improvement by a new standard.

A few simple facts underlie the consideration of stair proportions. One riser together with an adjacent tread form one unit of a stairway, the purpose of which is to receive one unit of the ascending and descending motions. Riser and tread are the vertical and horizontal components of a diagonal resultant motion of the body. A stairway for the use of many persons should obviously be designed in scale with the average body's most natural movements; therefore, whatever the pitch, or rake, the combined effect of riser and tread should approximate some constant. This is not a constant of *effort*, because the work done in ascending one unit in a steep stairway is greater than in a less steep one, although they may be equally well proportioned. Nor is it a constant of pure *motion*. The motion accomplished by the body is less on the steep stairway, just as the effort is greater. If it were clearly one or the other the problem would be less confusing. Ascent and descent are performed by that machine, the human body, with its complex interaction of bones and muscles working against nature's impediments of inertia, friction, and gravity. What this machine does in moving over a stairway unit, up or down, involves motions, efforts, and forces of different kinds, all combining into a unit of *mechanical action*.

The comfort and safety of a stairway depend primarily on the value of this constant. If the total of riser and tread is too great, ascent and descent become tiring successions of more or less spasmodic efforts instead of series of natural rhythmic movements. On the other hand, too small a unit causes discomfort by cramping the free swing of the body, and danger from the tendency to overstep.

This idea of a constant unit of action leads to the logical and correct conclusion that for differently pitched stairways to be equally satisfactory an increase in the riser should accompany a decrease in the tread, and vice versa. Can this constant be found, and a law derived from it to guide us in the rates of change? If there were such a law it seems not unreasonable that it should express summation, as by addition or multiplication. For instance, an 8″ riser requires about 9″ or 10″ for the tread; if we make a rule that riser plus tread ought to equal 17″ or 18″ we have provided a constant and a simple variation of the right general type. Inches taken from the riser are merely added to the tread. As all architects know, this is actually one of the old standard rules—though indeed a very poor one. When it appeared that for some riser heights this rule failed to "work," other systems of summation were tried; however, not one has been found so consistently reliable as to gain exclusive acceptance. Authoritative reference books have therefore adopted the expedient of stating several rules without expressed preference; as, for example, in the following quotation from Kidder's valuable "Architects' and Builders' Handbook":

"Several rules have been given for proportioning the run to the rise:

"(1) The sum of the rise and run should be equal to from 17 to 17½ inches.

"(2) The sum of two risers and a tread should be not less than 24 nor more than 25 inches.

"(3) The product of the rise and run should be not less than 70 nor more than 75.

"These rules apply only to stairs with nosings."

Referring to the last statement, it would seem that nosings have actually nothing to do with the proportions of rise and run, because no matter how wide or narrow the nosing may be, the *relative* widths of the treads are not affected, nor the *relative* dimensions of treads and risers; and proportions concern only relative values.

In the following discussion the width of the tread (T) is regarded as the horizontal distance between successive riser faces, and the riser height (R) as the vertical distance from one tread surface to the next.

Examining the three common rules, as correctly stated by Kidder, one first notices the evident fact that no two can agree for all values of either R or T. A clear picture is seen by plotting graphs of the three equations, assuming optional constants. (See dotted and dashed lines, Fig. 1.) $R + T = 17$ and $2R + T = 25$ are straight-line equations agreeing at one point, where $R = 8$, $T = 9$. $RT = 75$ is a hyperbolic curve meeting $2R + T = 25$ at two points, namely, $R = 7\frac{1}{2}$, $T = 10$, and $R = 5$, $T = 15$. $R + T = 17$ almost agrees with $RT = 75$ where in the latter $R = T = \sqrt{75}$, about $8\frac{2}{3}$, but differs with increasing rapidity as the risers become lower. The following table gives a few values for comparison:

TREADS FOR VARIOUS RISERS ACCORDING TO THREE COMMON RULES

	4	5	6	7	8	9
$R + T = 17$	13	12	11	10	9	8
$2R + T = 25$	17	15	13	11	9	7
$RT = 75$....	$18\frac{3}{4}$	15	$12\frac{1}{2}$	$10\frac{5}{7}$	$9\frac{3}{8}$	$8\frac{1}{3}$

It is evident from the above that these three rules are inconsistent as guides for proportion. Their only close approach to agreement is for risers of about 8″.

Many experienced architects have learned, by the costly method of trial and error, how to employ these rules discreetly; just when it is safe to use a certain one of them and when it is not; when this one should be compensated in such a way, or temporarily discarded for that one; and when they should all be abandoned in favor of some better proportions discovered in practice. The architect may use some of the rules for preliminary calculations, or quote them lightly as general guides to draftsmen, but as final authority he mistrusts them. His faith actually abides in his own mental experience table; he has repudiated the rules without fully admitting it. Students, however, and architects in early practice (and their clients) are deprived of such beneficial experience, and seeing the rules set forth in the best reference books, they conscientiously try to follow them and do the best they can with the hit-and-miss conclusions. That the resulting stairways are often hit-and-miss affairs is not unnatural.

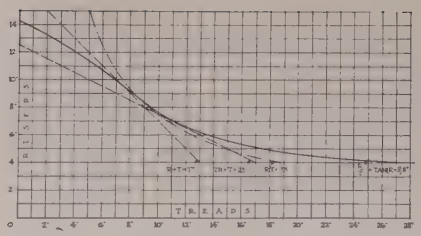


Fig. 1.—The dotted and dashed lines represent the three common rules for stair proportions. (The significance of the solid curved line will be discussed later)

The occasional malformation of a stairway is of course distressing to the owner and architect and all who suffer from its use. But by subtle suggestion rather than direct misguidance the old rules have done a much greater harm than this, and will continue to be a damaging influence as long as they are taught and published for reference. Collectively they have distorted even the well-trained architect's sense of proportions for all stairways with *low* risers (6″ or less) because it is here that they agree, in effect, by giving their most extremely bad values. A resulting fact is that with few exceptions the so-called "easy" stairway has treads so deficient in breadth as to be really comfortable only for small women and children; the average adult finds it "easy" only to fall down on. It is true that experience generally has taught the architect to add a few inches to the widest treads given by the rules, but not realizing the greatness of their error, and probably holding in the sub-conscious a surviving trace of his early faith in them, he very seldom adds enough.

An example of such a stairway might be found at the entrance of an important public building. The visitor approaches on the sidewalk at his normal walking gait. Reaching the first step and starting to ascend, he finds he must suddenly change his motion in one of three ways: either (1) curtail his stride, maintain his rhythm and lose speed, or (2) maintain his speed at a curtailed stride by accelerating his rhythm, or (3) increase the whole scale of effort by taking two steps at a time. But all of these ascending motions are uncomfortable, because they make a break in the natural flow of movement enjoyed on the level. Without good eyesight and close attention the abrupt change may cause a stumble. A similar discomfort is met in descending and the danger is much increased. Holding back the stride to fit the steps requires more braking power against gravity. If the tread is overstepped the fall will be serious.

Stairways with treads too wide are also uncomfortable though not so dangerous except in extreme cases. This fault is a rare one.

There is obvious need for a new standard of stairway proportions, based on practical investigation and expressed, if possible, in a simple, trustworthy rule. The writer has sought to accomplish this and here submits the results, believing they will provide a better standard than any now in common use.

Analysis of the stairway unit discloses not two but three elements—riser, tread, and angle of rake—any two of which establish the third. Riser divided by tread is the tangent of the angle of rake. The steepness, hence the whole character, of a stairway depends on the rake; therefore is it not reasonable to consider it the fundamental element? Imagine an inclined plane of clay, out of which, with knife in hand, we are to carve a stairway. We may work to any scale—such as a minute stairway for elves, or a huge one for giants. *But the ratio of tread and riser, at any scale, will be the same.* Our definite object is to determine a pair of values, for each angle of rake, suited in size to the most natural movement of *the average adult human body.*

For any given rake the pairs of tread and riser values depend on the establishment of either one of them. Of the two, which should have first consideration? The riser is the unit of up or down motion and the tread is the unit of forward horizontal motion. The functions of a stairway are ascent and descent—up and down—therefore it would seem that the riser is second in functional order of the three elements. The tread would then come last, being merely the measure of supplementary horizontal motion. So we have first the rake, fixing the total shape of the stairway, then the riser or unit of vertical motion, and finally from these two the tread, which spaces the horizontal motion in scale with the vertical.

Mr. Parker concludes his article in ARCHITECTURE *for December, explaining in detail how his proposed formula is derived and giving diagrams and tables facilitating an understanding and use of the principle.*—EDITOR.

Better Practice

By W. F. Bartels

A critical reading of present-day specifications, even those from offices nationally and internationally known, reveals at least two common shortcomings: first, the continuance of outworn provisions; second, the substitution of mere verbosity for explicit direction. The building crafts move on, but too frequently the architect's specifications fail to keep pace; the writer of specifications, in far too many cases, is ignorant of improved technic in the building trades and fondly believes he is hiding this ignorance behind a flow of traditional phrases. The tolerant contempt with which a skilled artisan views these lapses is not a pleasant thing to witness. Either the architect must set his house in order, as to specifications and detail drawings, or risk discredit, not only for himself but for the profession as a whole.

It has seemed to us that ARCHITECTURE *might render a service in seeking out the latest and most fully approved technic from among those most skilled in the various trades, passing along to the profession our findings as weighed and approved by a man of long experience in supervision on the job—W. F. Bartels. This series of monthly articles will not parallel, necessarily, the usual order of building procedure. Next month, the hot water service.*—EDITOR.

PLUMBING: (B) WATER SUPPLY

13—INVESTIGATION

BEFORE writing the section of his plumbing specification dealing with water lines, the architect should make several investigations. First, he should determine the kind of water the district provides. Several of the larger pipe manufacturers furnish analyses gratis, as well as advice concerning which pipe to use for such water. Having chosen the pipe, he should next find out what the water pressure in the main will be at the place he expects to have it tapped. This will help him determine whether or not he can call for flushometers with the assurance that they will work. Next, the architect should determine what size tap from the main is allowed by the local ordinances for the type of building he is planning. If he feels that it would be too small for the building's requirements, he may be able to get it changed, or possibly bring in two lines to his building from the main.

14—SPECIFIC DESIGNATION OF MATERIAL

Materials should be specifically mentioned and the extent of their use outlined briefly. If lines of a certain material are to be used up to a certain point, and from there on different pipe, they should be so specified. If one class of pipe is to be used for certain lines only, these lines should be specifically mentioned. This does not mean that the architect should limit his specification to one particular brand. Far from it. To do so might be against the interest of his client. But it does mean that the competition among bidders should be limited to the particular quality called for. Many architects do not believe in long specifications. But specifications should be long enough to cover all points necessary to safeguard the owner's interest. However, merely because a specification is long, it does not necessarily follow that it is complete, any more than it follows that a short one is incomplete.

By means of the paragraph numbers the reader is referred to the illustrations. Where more than one drawing illustrates a point in a paragraph the successive illustrations are also lettered, i.e., 17-A, 17-B, etc.

15—SAMPLES—STANDARD BRANDS

It is well for the architect to keep to time-proved, standard brands in his specification. This saves his client from being a "clinic patient," and having various experiments tried out on him. To make experiments at the expense of a client is unfair, unless the latter fully realizes his position. To further safeguard himself the architect should call for a sample of practically everything to be used. In the last few years many manufacturers have put out a "competitive line." While this bears their name, it is not the product glowingly described in their advertisements. A sample submitted will prevent the architect from having the cheaper product "put over" on him by an unscrupulous contractor, who, while he knew what the architect meant, legally could provide the less desirable product. It is advisable for the architect to scrutinize the sample closely and compare it with the other lines of the same manufacturer.

16—SIZES

The thickness, as well as the size, of the pipe should be carefully stated. In the average house standard thickness will probably be adequate, although some thought should be given to whether or not a heavier line might well be used from the main to the inside of the building. That regular brass pipe, and not the tubing, is desired, should be so stated by calling for all brass pipe to be I. P. S. (iron pipe size). Also the diameter of all lines, from mains to branches, should be stated. The lines should be adequate. If there is more than one bathroom in the house remember that other fixtures may need water simultaneously. It is better to have pipes oversize than undersize, as any one who has soaped himself and then had to wait for water, can testify. Remember that to double the capacity of a line costs less than 25 per cent more for everything, including labor. If it is possible, a size or two larger than the tap at the main should be used to carry the water into the building. Then, once inside the building it should be increased one size again. This will lessen the pressure drop through friction, to a minimum. If flushometers are to be used the manufacturer should be consulted in regard to size and pressure necessary for their operation, because in most cases the standard ½" tap allowed will not suffice.

The work to be covered by the specification should be carefully surveyed. If the contractor is to obtain or furnish meters, fish traps and other necessary items, it should be so stated. The use of materials should be given careful thought, and this thought transferred to paper, so that the plumber will know from reading plans and specifications what is expected of him, and not have to rely on mind reading.

17—CUTTING AND FITTING

In cutting pipe there is generally a burr formed on the inside of the pipe. The specification should call for this to be removed. Leaving it on results in a loss in the cross-section area of the pipe. In small sizes this loss is far greater than would be supposed. For brass pipe it is advisable to call for a friction type of wrench to be used, rather than to have the pipe chewed up by the careless use of Stillson wrenches. All wicking should be prohibited in the making up of joints, and nothing permitted except boiled linseed oil.

18—LOCATION; SUPPORT; PROTECTION

The hot water lines should be located from 6″ to 12″ away from the cold water lines; crossing of the two should be avoided. All lines should be well supported by adequate hangers and supports. However, fill lines for house tanks should not be anchored to any structural steel. If this is done there are grave possibilities that the pump vibrations will be carried through the house. All lines and branches should be run so as to drain to a low point in the cellar, at which point a valve should be provided. No lines should be run in outside walls if it is possible to avoid doing so. Any lines so run should be covered, as will be described later. Nor should water or any other lines be run in such places as fire walls, or other vital locations, where in case of trouble serious damage might result. And of course, pipes over or near entrances should be avoided. If there are two lines entering the building, as there should be for every large one, it is necessary to have these lines cross-connected. The roughing will be lined up so that all valves project from the finish the same distance. Walls should not be curved or slanted in order to catch all the valves and avoid burying them in the wall. All pipes should be capped when the roughing-in is completed, to avoid any dirt or rubbish getting in them. These caps must be kept on until the fixtures are set.

19—GENERAL REQUIREMENTS; NOISE AND MOVEMENT

The plumber should furnish the necessary cut-off required at the curb line, and should supply an extra heavy sleeve where the line comes through the exterior wall. This he must make watertight. It is prudent to require a swing after the line enters the building to take care of any shifting or movement due to expansion or other causes. Sharp bends in the lines are to be studiously avoided. Air cushions above all fixtures should be called for in order to take up the shock caused by the quick closing of a valve.

20—VALVES AND FITTINGS

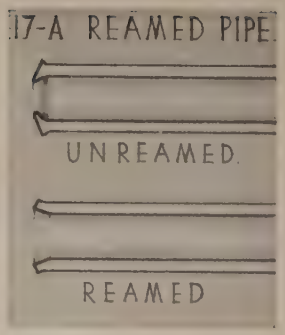
Definite locations and types of valves should be given. A little extra money spent for valves in the proper places will be well repaid. Valves should be of a good quality but need not be expensive. What might be termed cheap valves should be avoided.

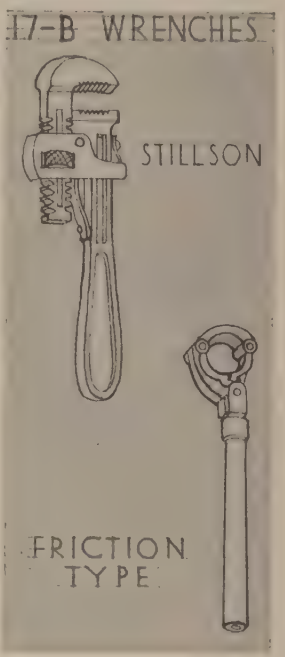
Fittings, such as elbows, couplings, tees, etc., are generally made in two types: regular, and cast-iron pattern. The first are good on all regular work where the pressure is not too great and the size is normal. In large sizes and where high pressures are used it is better to use the cast-iron pattern type, which is distinguishable not only by its additional size and weight, but also by its heavy shoulder in contrast to the bead or flat band of the regular type.

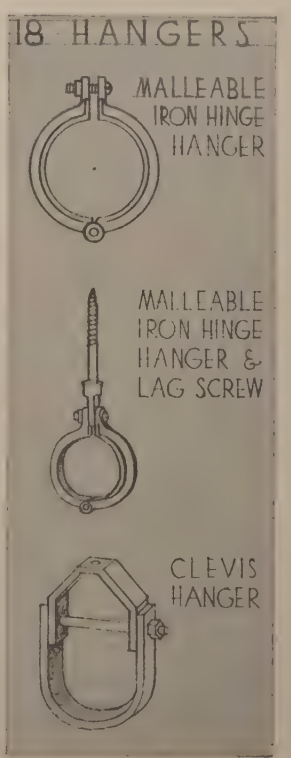
Nipples should be specified—whether they are to be standard or extra heavy. Many engineers prefer not to use close nipples, and if they have to use them specify the extra heavy type, but plumbers will not install them unless forced to. Close nipples can be avoided in most places by good workmanship.

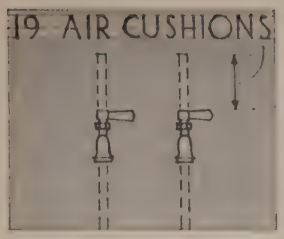
Elbows and tees should be the standard type of a well-known brand. It pays to specify recognized manufacturers' products because if they supply defective material, in most cases they will not only furnish new material, but pay for its installation as well.

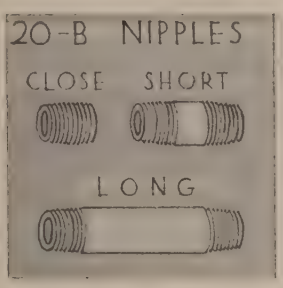
In good work, rights and lefts are generally called for where unions

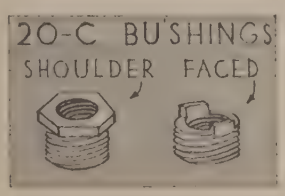












might otherwise be used. They are indeed more workmanlike but are more difficult to install and hence are avoided by most mechanics.

Many times, bushings are prohibited without a genuine, logical reason being given. The architect may feel that they slow up the water, inasmuch as they would form a shoulder in the line in the case of most small jobs. The plumber is more familiar with the real reason, however, and he generally will forbid them, even if the architect does not. Mechanics are prone not to make the bushing-up tight, and, with only a few threads caught, any bending or swaying will cause a leak. Instead of specifying bushings it is preferable to state that reducers must be used.

Check valves are used where it is desired to have the water flow in one direction only. They are very convenient to install in a domestic hot water system to make certain the direction of flow. Angle, globe and gate valves are a part of the plumbing or heating equipment of almost every building. Globe valves are better adapted to steam systems because they are better modulators than gate valves.

It is well, even on the small house, to have all valves tagged and a chart furnished. This is very convenient particularly if one is going away and wishes to leave instructions.

Jumpers or cross-overs will seldom be necessary if the work has been properly laid out.

21—COPPER TUBING

Copper water tubing has come into extensive use in alterations and repair work. It lends itself to installations where it would be difficult if not impossible to use ordinary pipe. It eliminates costly cutting and patching through the fact that it can be drawn through cramped spaces. In many cases bends may be used instead of elbows, but care must be taken that the pipe is not flattened in bending, causing it to lose its cross-section area. Likewise, it must be protected from materials bumping and denting it. Where connections to rigid pipes are necessary fittings may be obtained for this purpose. The architect should keep its possibilities in mind.

22—GAS PIPING

Before the architect specifies gas-pipe sizes he would do well to consult both the local ordinances and the local gas companies. The sizes they demand will be minimum ones. The plumber will be required to connect any line or meter the gas company furnishes, and must supply all valves, fittings, and other accessories necessary to complete the system. Proper drips must be put on all lines. No lines are to be run where they may be subject to damage, such as by trucking; and, if possible to avoid it, not where the condensation of cold water lines may drip on them. All the lines must be properly supported. Rights and lefts are to be used instead of unions, because of the danger of leaking. In residences proper attention must be given to the placing of the kitchen stove in order that its gas outlet may be located in the most advantageous place. It is better to exclude the stove from the plumbing contract, or in it to have a certain cash allowance made, in case it is desired to change the style. But the connecting up of the stove is to be included in this contract.

23—CUTTING AND PATCHING

Cutting and patching is an item to be given careful thought in any trade, particularly plumbing. If the work is necessitated by the plumber's own mistakes or carelessness, he should not charge for it. If other trades are responsible for his having to do excess cutting, they should pay for the work. But no cutting or patching should be done without the superintendent's permission.

Checking over some plumbing lines one day on a job, I found that a plumber had brought a 1½″ line directly across the middle of a room having 3″ by 8″ beams. He had cut out a section of each beam fully 2″ square for the pipe, but had no conception that what he had done would weaken the beams. I asked him why he had done it and he replied, "Oh, I didn't want to bother the carpenter."

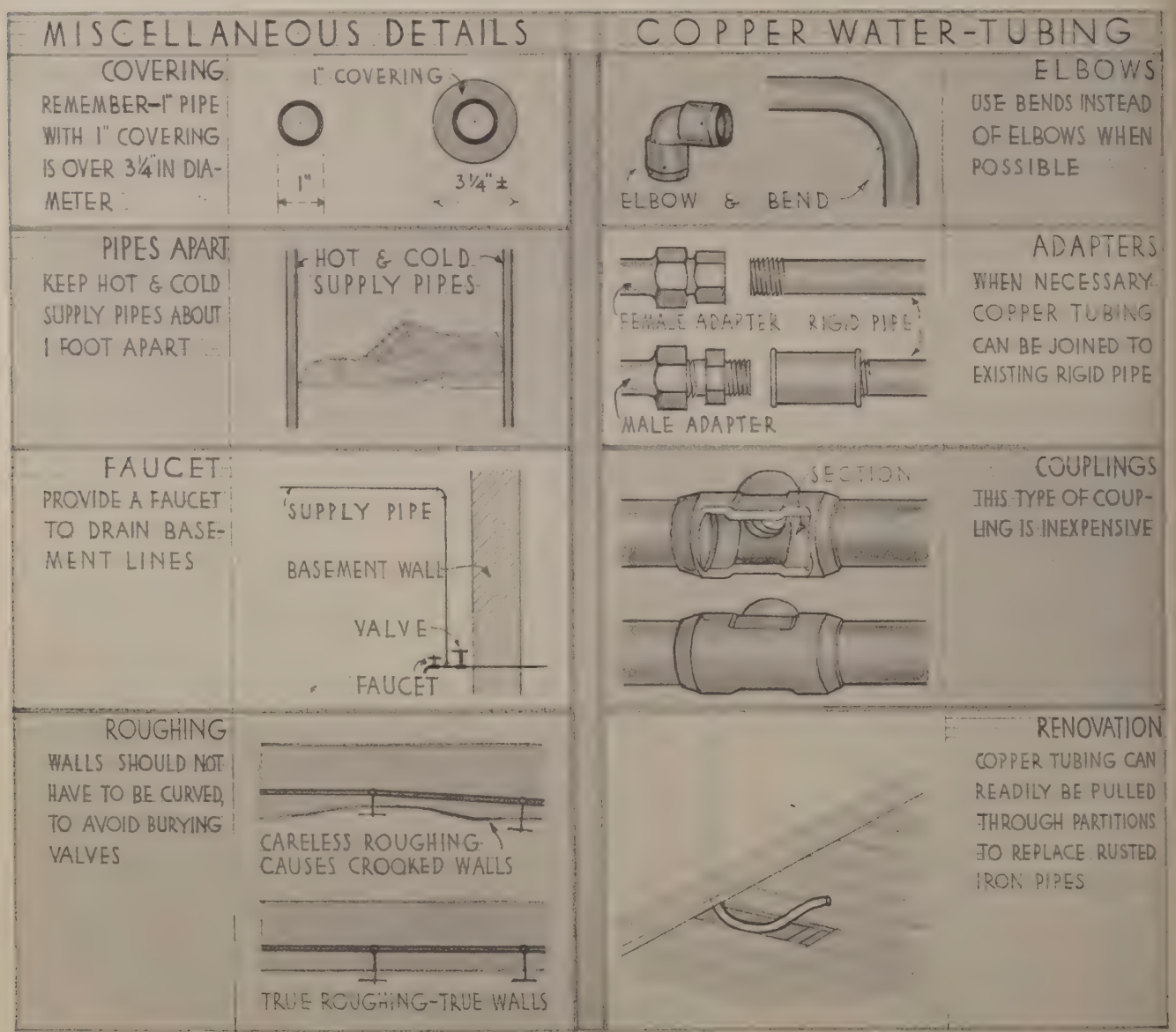
24—PAINTING

A definite statement covering which pipes are to be painted is far better confined to one lucid paragraph in the specification (even though a cross-reference must be made), than to drop casual hints from time to time. The former is more definite, specific and satisfactory for every one, because the manner, color, and extent of the painting can be more adequately described.

All lead bends which come in contact with cinders or cinder concrete should be painted with two coats of asphaltum paint for protection. Besides painting to prevent the acid in cinders from attacking lead pipes, as an additional means of protection they are often encased with roofing paper. Gas lines in cinders should also receive two coats of asphaltum paint. If two coats of paint are specified for exposed pipes, contrasting colors will help the superintendent.

25—TESTS

The architect should make the demand in his specifications that he is to be given notice of, and must pass on, all tests. First will be the water test, which should be given to see that all the waste, vent, soil and leader lines are tight. Then there will be an air or water pressure test on all the water lines to make certain there is no leakage. The pressure applied in the latter test is generally one and a half times the greatest pressure that will be present when the system is working. Next, a test should be made on the entire gas system with a pressure of 10" of mercury showing on the gauge, and the system "holding tight" at this reading. Some local authorities also require a flange inspection between toilet floor flange and lead bend. After the fixtures are set a smoke or peppermint test is required in some communities. The traps of the fixtures are filled, of course, and the test is to detect any defective lines or fixtures.



When figuring clearances, remember that pipe covering increases the sizes considerably.

The inspector's foot is a convenient measure of distance between hot and cold supply piping.

Make sure that a faucet, rather than a cap, is provided for bottom drainage.

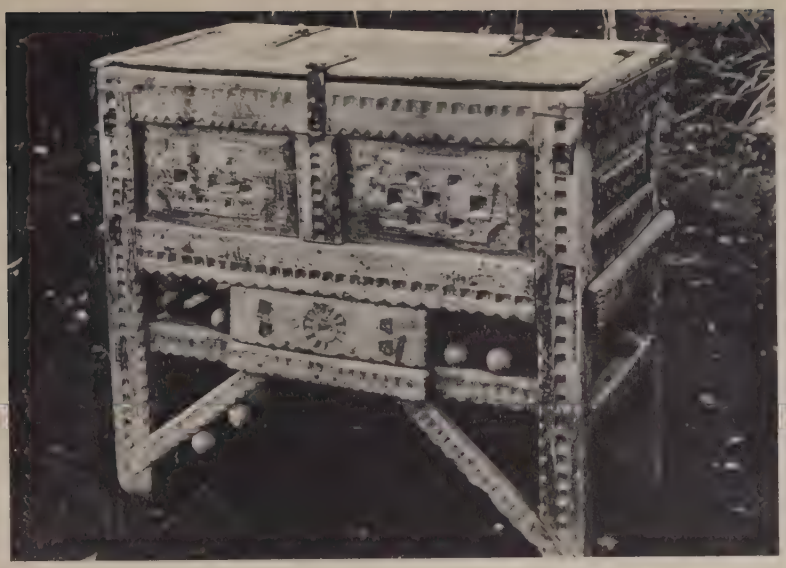
Consider the finished wall when placing valves in the roughing.

Get long easy bends without flattening, for your flow lines, to decrease friction and noise.

Copper tubing can be joined to rigid pipe where necessary, by adapters.

Here is a new and effective type of coupling or, as shown here, tee.

Copper tubing has a special usefulness in remodelling existing work.



An old chest — *Taos, N. M.*

Spanish Architecture of the Southwest

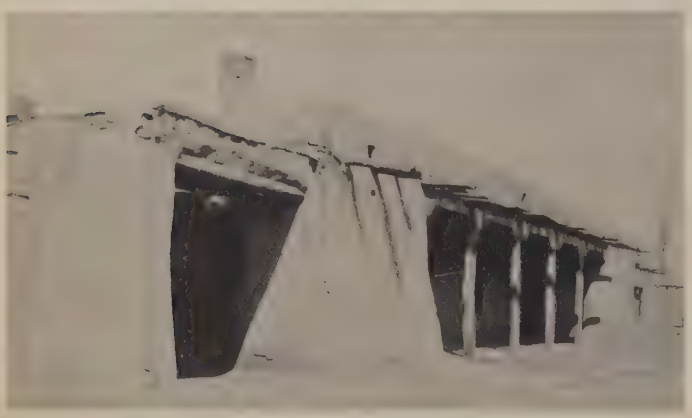
SOME DETAILS OF WOODWORK AND ADOBE CONSTRUCTION AS DEVELOPED FROM THE SPANISH WORK IN SPAIN AND IN MEXICO, TOGETHER WITH SOME MODERN ADAPTATIONS

A chair loft or balcony from the church at Santa Cruz

Vigas (beams) and their supporting brackets, from Santa Cruz church

Doors of the church at Trampas

A sheltered portal at Penasco



An adobe inn of stagecoach days, Santa Fé

Ranchos del Taos, an Indian Pueblo church

Old benches from near Trampas

Beneath the portal of an adobe house at Chimayo

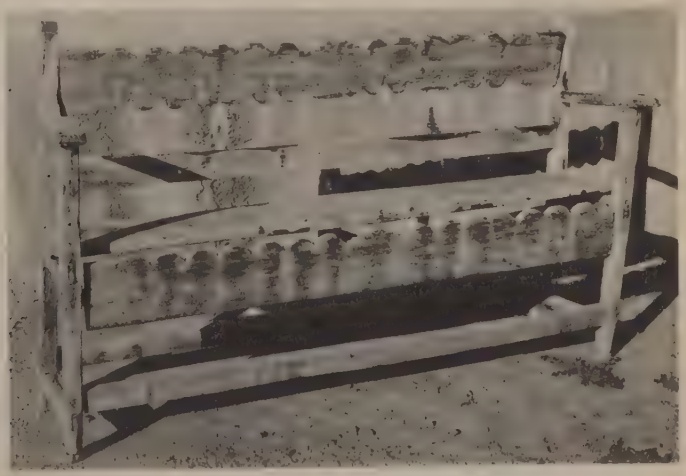
Portal of a house near Alcalde

Patio doorway, Art Museum, Santa Fé.
I. H. Rapp, architect

Church at Taos

A home at Santa Fé—with the typical portal or covered porch

An old bench from Penasco



A confessional in the sanctuario, Chimayo

The home of Frank Applegate, Santa Fé

The home of Frank Applegate, Santa Fé

Home of Datus E. Myers, Santa Fé

Reginald D. Johnson, architect

Home of Mrs. Mabel Lahan at Taos

Patio of La Fonda, a hotel at Santa Fé

The Editor's Diary

Friday, September 1.—One hears underground rumblings as to the creation of a draftsman's union. I think it is unlikely that this will come into being, at least in so far as the architectural profession is concerned. Nevertheless, there are indications here and there that the architectural draftsman is suffering, like most people, from the fact that his employer is taking advantage of the present low labor market. There is a temptation—which only some altruism will conquer—to the architect who has just gotten his first job in a year or two, to employ the necessary drafting force at the lowest rate he can get. This, in the present demoralized architectural drafting market, is too low to constitute a living wage. It would seem only the fair thing for the architect fortunate enough to find new work, to share these benefits with those of his old or new organization who have borne also the heat and burden of the day.

Saturday, September 2.—John H. Millar expresses a thought tersely when he says, "There is a lot of waste in government to be eliminated—almost as much as in business. For example, seven milk wagons going past the same house every morning; a hundred thousand more oil stations than are needed; armies of insurance and real-estate agents pounding the streets; industries with four times the plant capacity that the market in a boom year can absorb, etc." Which reminds me of a remark made by Professor Walter Rautenstrauch. Some one asked him whether the new sort of social betterment he visioned did not call for government by engineers. The professor replied: "By no means; government by engineers would be quite unfortunate—almost as much so as government by politicians and lawyers has proven to be."

Monday, September 4.—Ohio has crashed through with the first Public Housing Authority Act, largely through the efforts of Ernest J. Bohn, a Cleveland attorney and chairman of the recent National Conference on Slum Clearance in that city. This means that here is the first state housing authority eligible to receive a grant of 30 per cent of the cost of labor and materials from the Federal Government, and possibly even a loan of the other 70 per cent.

Wednesday, September 6.—I have never yet read anything of Leicester B. Holland's that was not well worth reading. His "Toward a Nudist Architecture," originally delivered to the Philadelphia Chapter at its annual meeting, and now reprinted in the *Octagon* for August, is something that no one should miss.

Friday, September 8.—I hear that the Phelps-Stokes Fund is about to undertake a comprehensive study of slums and blighted areas. Professor James Ford, of the Department of Sociology at Harvard, the man who edited the twelve volumes of the President's Conference on Home Building and Home Ownership, will direct the investigation. The work is expected to require eighteen months, and will include the study of the causes of these slums, their prevention, elimination, and conversion for proper housing for other uses. My only regret is that the investigation could not have been completed by this time so that we could proceed with building under the Public Works Act with a more assured knowledge.

Monday, September 11.—To Albert Stewart's studio with Electus Litchfield to see the plaster models of a frieze around the top of the Albany Post Office and Court House, designed by Gander, Gander & Gander, with N. R. Sturgis, associate architect, and Electus D. Litchfield, consulting architect. The architects are trying a new technique—a continuous band eight and a half feet high into which is cut a shallow relief—two inches at the most—by means of pneumatic cutting tools. As may be recalled from the preliminary perspective of this building, there is no cornice, the decorative frieze encircling the building with the attic windows penetrating it. The cost of a full sculptured frieze, of course, would have been prohibitive, but Mr. Stewart has developed a most interesting technique in securing a representation of post office and court activities through a succession of flat figures on the surface of the model with the background cut away. There is only the slightest suggestion of drawing on the flat surface, with shallow incised lines.

Tuesday, September 12.—Under the N.R.A. a loan of twelve million dollars goes to Cleveland to be used for housing by a limited-dividend corporation organized under Ray T. Miller's Business Recovery Committee, of which Ernest J. Bohn is chairman. The housing will be of varied types two- and three-story apartments, two-story rows of fireproof flats, row houses. There are about four thousand family residences to be built on sites including about one hundred acres in the heart of the slum area, just east of Cleveland's downtown business section. Rentals will be between $8 and $8.50 per room. This is by far the largest loan approved thus far under the Federal Emergency Administration of Public Works.

St. Louis wins approval for a loan of five hundred thousand dollars for its Neighborhood Association to build three-story fire-proof apartments in a downtown slum area, to rent for $9.67 per room per month.

Wednesday, September 13.—There has been a good deal of general talk to the effect that slums are expensive luxuries. Here are some figures, according to the Indianapolis Community Plan Committee: In one particular sore spot of that city the cost to the municipality is $92,775, while the tax income from the same area is $11,312, so this particular slum of Indianapolis is costing the city more than eight times the income.

Friday, September 15.—Rhodes Robertson in from one of his peregrinations about Vezelay. He is one of those few fortunate mortals able to own a house in France, and commute more or less leisurely between France and America. I hope soon to show in these pages some of his latest sketches made with block crayon.

Saturday, September 16.—The restoration of Williamsburg seems to have reached a plateau on which the action will pause while the gains are being consolidated. Mr. Rockefeller has spent over eleven million dollars in this work in the six years and more that it has been under way. Three hundred fifty-two buildings of modern construction have been torn down, fifty-seven Colonial buildings have been restored, sixty-one Colonial buildings have been constructed, two business blocks containing twenty-five shops and stores have been erected. The end, of course, is not even in sight. I rather imagine, however, that progress will henceforth be made more slowly as more property is gained by the corporation through the termination of long leases.

Monday, September 18.—Talbot Faulkner Hamlin calls attention, in *The Na-*

tion for August 9, to the disturbing condition in which the architectural profession has been left by the depression: if architects were producing the same amount per capita in 1933 as in 1928, out of seven architects and draftsmen at work in 1928 only one would be busy today. In 1928 the work, amounting to something over three and a half billions, was shared by nine thousand offices. In 1932, the half billion of work went to only fifty-three hundred offices. However, the figures for these four years show a total of ninety-seven hundred new architects. Of course, the bulk of the latter figure is probably made up of draftsmen out of a job who have hung out their shingles.

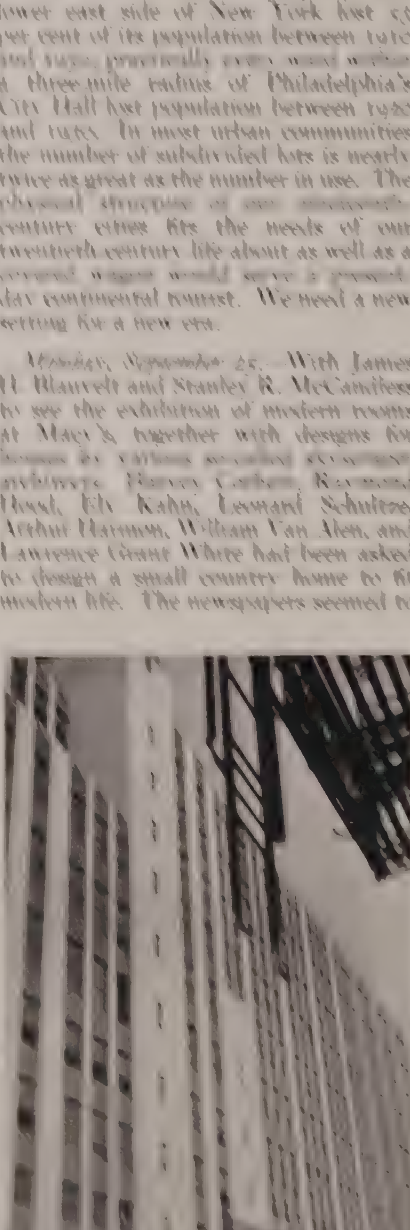
In the profession of architecture, as in industry, the smaller office is the one which rides the storm with less damage than the large one. One of the saddest findings of all is that in 1932 the total income for architectural practice was at best less than one-fifth the income in 1928.

Tuesday, September 19.—In all the talk concerning functionalism in the house, there seems to have been very little consideration given functionalism in the garden. Raymond Hood was telling me today at lunch of his own convictions regarding the desirability of designing a house so as to provide as much as possible outdoor usable space — that there should be a gradual transition from definitely enclosed space to the garden itself. In his own house he has a paved terrace sheltered by an overhanging second story, and provided at one end with a fireplace. This outdoor room is sheltered from the north, is not screened against flies and mosquitoes, but is used even at meal times from very early spring up to the first of January. Even a rain does not drive one indoors — it takes a real fog to do that. The point Hood makes is that in designing the average garden surroundings too many of us are apt to aim at what will look well and accord with our preconceived ideas of garden beauty. We lose track of garden usefulness and the garden's function as outdoor living space.

Thursday, September 21.—Professor William A. Boring, head of the Columbia School of Architecture since 1919, has been granted a leave of absence for a year, and Professor Joseph Hudnut is Acting Dean. He is going to revamp the architectural courses, less covering competitions, [illegible] and co-ordinating design and construction more intimately. The problems in design will be based rather more [illegible] — there will be less of "an embassy for a foreign government in a national capital" and more of "a branch department store for a suburb."

Saturday, September 23.—Clarence Stein says that the bankruptcy facing our larger cities is not so much the result of municipal corruption as of the double load of supporting slums and blighted districts together with the vast expansion of highways and public utilities, which possibly has been said before, but he brings up some new facts: in Detroit the seventeen square miles forming the central core of the city are all blighted with the exception of a few small groups of modern buildings; in Cleveland the Housing Committee of the Chamber of Commerce and the city has found twenty-two of its seventy-one square miles of the city unfit for human living, and unremunerative as property; the lower east side of New York lost 53 per cent of its population between 1910 and 1930; practically every ward within a three-mile radius of Philadelphia's City Hall lost population between 1920 and 1930. In most urban communities the number of subdivided lots is nearly twice as great as the number in use. The physical structure of our nineteenth-century cities fits the needs of our twentieth-century life about as well as a covered wagon would serve a present-day continental tourist. We need a new setting for a new era.

Monday, September 25.—With James H. Blauvelt and Stanley R. McCandless to see the exhibition of modern rooms at Macy's, together with designs for houses by various so-called "skyscraper" architects. Harvey Corbett, Raymond Hood, Ely Kahn, Leonard Schultze, Arthur Harmon, William Van Alen, and Lawrence Grant White had been asked to design a small country home to fit modern life. The newspapers seemed to think that it was something of a heaven-born inspiration to bring the brains of this steel-structure group to bear upon the problem of the small home. Perhaps, though it seems to me something rather like calling in a gynecologist to operate on one's eye.



[illegible]

Tuesday, September 26.—Up to Worcester, Mass., to see the opening of the Memorial Auditorium designed by Frederic C. Hirons in collaboration with Lucius W. Briggs. With a seating capacity of nearly four thousand, a large stage which serves not only the main auditorium but a small theatre on its other side, and a Memorial Hall of magnificent proportions and unusual restraint, Worcester now has one of the great civic centres of the country. In observing the finishing touches to lighting, organ, sound amplification apparatus, and decorations, I was impressed by the constantly growing necessity for collaboration of the architect with many other experts in the creation of a modern building. Peter Clark was much in evidence supervising the stage equipment; T. F. Bludworth busy trying to adjust his sound amplification to the last fine point of efficiency; the organ-tuners adjusting electrical controls; Professor Sabin of Harvard observing the effects of his acoustical treatment, and probably wondering just what differences the inclusion of four thousand people would make in the reflection of sound waves.

Thursday, September 28.—J. C. Bebb was telling me at lunch today that there is a possibility of making a permanent park feature in Chicago of one of the great observation towers supporting the "Skyride." Instead of scrapping these six-hundred-foot observation towers, it seems as if both should be utilized permanently rather than being thrown into Lake Michigan with most of the rest of the Century of Progress Exposition.

Saturday, September 30. — Winold Reiss, who has just been appointed Assistant Professor of Mural Painting at New York University, says that "mural painters should keep in mind that after all it is the other fellow who owns the wall; sometimes the owner of the wall has some very definite ideas of what he wants or what he does not want." Which leads us back to Rockefeller Center and some of the difficulties the management is having with its mural painters. Having dismissed Diego Rivera and covered up his work, they seem now to be trying to answer Frank Brangwyn's question. Having been asked to paint something representative of the Sermon on the Mount, he seems puzzled as to how this can be achieved, leaving out, as had been requested, the figure of Christ.

U. S. Post Office, Hempstead, L. I.

TOOKER & MARSH, ARCHITECTS; JAMES A. WETMORE, ACTING SUPERVISING ARCHITECT OF THE TREASURY

Photographs by Watts Brothers

The exterior of the building is of brick in pastel shades of brown and red; the trim of limestone. As will be seen from the plan, a small amount of space in the rear and on a second floor over this space is at present utilized by the Government for recruiting purposes, thus providing economically for future expansion

The metal work of the main entrance and the windows across the front of the building are of aluminum, as are also the lighting standards flanking the main entrance. The sculptured panels over the windows, and the abbreviated cornice, are of limestone

The public space is developed in a color scheme of several greens and aluminum. The floor is of terrazzo. Aluminum appears in doors, grilles, check desks, and lighting fixtures

Above, a corner view from the rear, showing at the right the mailing platform. The only part of the building below grade is that under the rear end block, providing for boiler-room space and storage. Below, the workroom, which has a wood wainscot and wood block floor

CONTACTS

DEVOTED TO A BETTER UNDERSTANDING OF THE BUSINESS SIDE OF ARCHITECTURE AND ITS RELATION TO THE INDUSTRIES

The Contribution of Engineering to Progress

By

Edward J. Mehren

PRESIDENT, PORTLAND CEMENT ASSOCIATION

Excerpts from an address before the Joint Dinner of the National Engineering Societies during Engineers' Week at A Century of Progress Exposition, Chicago, June 28, 1933

AMERICA this week is witness to a situation which many may consider paradoxic and which is at least dramatic.

On Chicago's lake front lies a great World's Fair—from beginning to end a glorification of the scientist and the engineer, an exposition of the physical achievement of the machine age.

To it this week have come America's engineers. But while they look and appraise, while they acclaim and are acclaimed, the world declares that the machine age they have created has failed and is responsible for our present economic and social debacle. "You have contributed to man's leisure, comfort, and convenience," add the challengers, "but the results have been mental flabbiness and weakened morality. There has been no true progress." Such are the charges thrown at the work of the engineer.

Has engineering contributed to progress?

Has there *truly* been a century of progress?

But there is another reason for facing the charge. Even were our social and economic systems intact and orderly, the meeting of these societies at such an exposition would demand a discussion of this kind. The machine age has been consistently under challenge for a score of years and more particularly since the close of the World War. Its effect and impact need inquiry, for engineering is now the basis of our economic system, it determines our social order, it goes down into the life of every individual and affects him for weal or for woe.

The present depression, therefore, does not dictate the topic. It *does* make it more pointed and more pertinent.

When we speak of progress we mean movement or development in a desirable direction. I conceive that humanity is travelling a long road whose desirable direction and goal are the happiness of all mankind, accompanied, first, by a wide diffusion of this world's goods; second, by the highest order of intellectual development of which individual men are severally capable, and third, by high moral attainment, which may be expressed as that "peace with God and peace with ourselves that surpasseth all understanding." This is the goal, this the ideal.

But the long road that mankind is travelling is cut by ravines and chasms, some shallow, some deep and precipitous. The ravines and chasms are greed, exploitation, oppression, war, hunger and famine, insanitary surroundings, disease, ignorance, vice—and all those other hindrances which interfere with man's progress. At the beginning of recorded history, humanity toiled down into each of the chasms, forded the streams, and toiled up the opposing banks. Progress was slow.

In time, advancement of the arts, better social organization, education and religion, built bridges across the streams, at first only high enough to clear the flood. Further advances raised the bridges to higher levels, made them safer against floods, and reduced both the descent and the upward climb. Could the job ever be completed, we would build a bridge over every chasm from bank top to bank top. The chasms in effect would disappear and humanity would go forward joyously on a high road—a true *high* way—to its destiny.

Using the simile of the road, our questions can be paraphrased in this way:

"Has engineering helped to build bridges over the chasms, has it raised them to higher levels, has it made them more secure, has it brought nearer that high road without dips, on which humanity can go forward joyously to happiness, to more uniform enjoyment of this world's goods, to high intellectual and moral attainment?"

I take it that it is entirely unnecessary to speak of engineering achievements in themselves. The whole world concedes that in every branch of engineering our machines, mechanisms, processes, and structures outstrip those of any previous day.

We are interested here, however, not primarily in machines but in their effects.

Our first inquiry properly relates to the influence of engineering on social progress; that is, on the distribution of wealth, on its effect on men—its effect on them externally and in their relations to others.

The question of wealth deserves special consideration. Wealth today is not only greater in the aggregate, but more widely diffused. The distribution is not entirely equitable, but it is not so disproportionate as those imagine who think only of private property and forget the immense treasury of community wealth. The first is the possession of the individual; the second, the possession of all, for their comfort, convenience and use. In community wealth never were people richer—in the number and quality of streets and roads, in the purity and amplitude of water supply, in the sanitation and lighting of cities, in fire and police protection, in courts of justice, in medical, educational and recreational facilities.

How can we account for this increase in the standard of living, this extraordinary social progress, this wide diffusion of wealth?

The explanation lies in a profound but very simple fact, as fundamental and as elemental in the economic order as the commandment, "Thou shalt not steal," is in the moral. If we are to appreciate the

significance of the engineer and the engineering age, if we are to comprehend the world through which we have been passing, if we are to penetrate the present economic convulsion, and understand the economics of what is ahead, we must understand this primal fact and let it sink into our consciousness. That fact is this:

that through the engineer's development of power we produce wealth more rapidly today than at any previous period in man's history.

It is this increase in the rate of wealth production that has given us the facilities, conveniences, comforts, and advantages of which I have spoken. To this do we owe our great private and community wealth, our high standard of living, our high level of social advancement.

We come now to the second part. Has engineering contributed to intellectual and moral development, has it bridged at higher levels the chasms that have held back his spiritual progress?

Here our critics will rage. The age is decadent, they tell us; we are flabby intellectually, we have backslid morally. We have much information, they say, but little wisdom; alert perceptions but little culture; athletic bodies, but no rigidity of moral character.

Are we able to answer the indictment?

There may not be a single luminary today of the brilliance of Shakespeare, or Dante, or Aristotle, but our age *is* one of striking intellectual vigor and activity. We must not make the mistake of coloring the entire Elizabethan age with the stature of Shakespeare, nor think that the whole Greek world was up to Aristotle's level.

If our galaxy has not a dominant luminary, it nevertheless has many great suns. In every line of human thought, the output of our researchers is prodigious. If an age is to be judged by the sum total of its contribution to human knowledge, then ours must be given high rank.

Each age, too, has its own *Zeitgeist*, the spirit of the age. Ours is science, pure and applied. In those fields we are making an intellectual contribution of stupendous proportions. In astronomy, physics, chemistry, biology, medicine, engineering we stride with seven-league boots.

We claim, too, as an intellectual accomplishment the spread of education, common, secondary and higher, to the masses of men in the Western world. To reclaim people from ignorance, to open to them the storehouses of knowledge and of wisdom, to make possible, yes easy, for any one who wishes to secure it the very highest education, is indeed an accomplishment of which the machine age may justly be proud. That the education of the will has not gone along as lustily as the education of the intellect is a charge we will have to admit, but it does not completely negative the intellectual achievement.

But what of our moral life? Who shall judge it? Not I. There is no more difficult task for the historian than to determine the moral tone of an age—to strike the average from king to peasant, from president to humble citizen. In this respect no age can be sure of its appraisal of itself. The human soul—the millions of human souls of the Western world—cannot be weighed nor calipered.

Certainly we are not morally what we would like to be or ought to be. That can be said of our intellectual stature as well.

But if our age has not risen to the intellectual and moral standard that we would wish, if we have not raised to top height the bridges over the chasms that handicap our intellectual and moral lives, the fault is not that of the engineer, but of the very teachers, religious leaders, economists, and statesmen who are today his critics. We find here another fundamental and elemental principle that should be stressed as strongly as the rapidity of wealth production. It is this: that the engineer has created an environment far more favorable to widespread intellectual and moral growth than the world hitherto has ever known.

Let that in turn, be *our* challenge.

Here is an environment for spiritual growth such as the world hitherto has never known. Possibly humanity moves too slowly to make full use of this environment at once, but blame not the engineer for the failure.

It is because the economist, financier, the statesman, the teacher, the religious leader have not been able to keep pace with the engineer that untold difficulties arise. The more rapid creation of wealth has changed the whole base of Western civilization. It is the misunderstanding of this factor and the failure to recognize its profound and all-pervasive influence on finance, business, the distribution of wealth, national and international politics, and on human thought and outlook, that have thrown the Western world into its present crisis and baffled its statesmen.

Machine-power agriculture on the one hand, and industrial development on the other, have removed millions from their attachment to the soil, concentrated them in the cities and deprived them of their security. As Dr. Steinmetz put it, they have been exposed to the three great fears—fear of unemployment, fear of illness, fear of an unprovided-for old age. And while this has been brought about by the progress of power, the statesman, the financier, the economist have not kept pace and found ways of banishing these fears and, by using the new wealth, restoring the security that men enjoyed when attached to the land.

Second, there has been tardy recognition that too large a proportion of the wealth created by the machine has been reinvested in more machines and too little diverted to consumable goods and community services. It is one of the keen lessons of this depression that an age that creates wealth as fast as this one does will have much of that wealth confiscated during depressions if too large a proportion goes back into the extension of production facilities. Here again, finance and political economy lag behind the work of the engineer.

A final illustration: Highway transport—the combination of the hard road and the automobile—has made township government and small counties obsolete—survivals of the horse-and-buggy days. Township governments should be abolished, counties consolidated. The automobile makes it logical, but the politician insists that the anachronism continue.

But be assured that we are mastering, we will master the new instrument. Much of what has been going on in Washington in the last three months is an effort in this direction. The phrase "the forgotten man" is not a mere political catchword but the expression of a fundamental social philosophy.

Our contention, then, is that we engineers have not only builded higher bridges across the chasms, but have furnished the materials for still higher bridges if the statesmen, economists, teachers can learn to use them.

THE EIGHTY-FIFTH IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

ARCHITECTURE'S PORTFOLIO OF

GOTHIC NICHES

Subjects of previous portfolios are listed below at left and right of page

1926
- DORMER WINDOWS
- SHUTTERS AND BLINDS

1927
- ENGLISH PANELLING
- GEORGIAN STAIRWAYS
- STONE MASONRY TEXTURES
- ENGLISH CHIMNEYS
- FANLIGHTS AND OVERDOORS
- TEXTURES OF BRICKWORK
- IRON RAILINGS
- DOOR HARDWARE
- PALLADIAN MOTIVES
- GABLE ENDS
- COLONIAL TOP-RAILINGS
- CIRCULAR AND OVAL WINDOWS

1928
- BUILT-IN BOOKCASES
- CHIMNEY TOPS
- DOOR HOODS
- BAY WINDOWS
- CUPOLAS
- GARDEN GATES
- STAIR ENDS
- BALCONIES
- GARDEN WALLS
- ARCADES
- PLASTER CEILINGS
- CORNICES OF WOOD

1929
- DOORWAY LIGHTING
- ENGLISH FIREPLACES
- GATE-POST TOPS
- GARDEN STEPS
- RAIN LEADER HEADS
- GARDEN POOLS
- QUOINS
- INTERIOR PAVING
- BELT COURSES
- KEYSTONES
- AIDS TO FENESTRATION
- BALUSTRADES

1930
- SPANDRELS
- CHANCEL FURNITURE
- BUSINESS BUILDING ENTRANCES
- GARDEN SHELTERS
- ELEVATOR DOORS
- ENTRANCE PORCHES

Below are the subjects of forthcoming Portfolios

Curtain Treatment at Windows
DECEMBER

Exterior Plasterwork
JANUARY

Church Doors
FEBRUARY

Fountains
MARCH

Modern Ornament
APRIL

Rustication
MAY

Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up about six weeks in advance of publication date.

1930
- PATIOS
- TREILLAGE
- FLAGPOLE HOLDERS
- CASEMENT WINDOWS
- FENCES OF WOOD
- GOTHIC DOORWAYS

1931
- BANKING-ROOM CHECK DESKS
- SECOND-STORY PORCHES
- TOWER CLOCKS
- ALTARS
- GARAGE DOORS
- MAIL-CHUTE BOXES
- WEATHER-VANES
- BANK ENTRANCES
- URNS
- WINDOW GRILLES
- CHINA CUPBOARDS
- PARAPETS

1932
- RADIATOR ENCLOSURES
- INTERIOR CLOCKS
- OUTSIDE STAIRWAYS
- LEADED GLASS MEDALLIONS
- EXTERIOR DOORS OF WOOD
- METAL FENCES
- HANGING SIGNS
- WOOD CEILINGS
- MARQUISES
- WALL SHEATHING
- FRENCH STONEWORK
- OVER-MANTEL TREATMENTS

1933
- BANK SCREENS
- INTERIOR DOORS
- METAL STAIR RAILINGS
- VERANDAS
- THE EAGLE IN SCULPTURE
- EAVES RETURNS ON MASONRY
- GABLES
- EXTERIOR LETTERING
- ENTRANCE DRIVEWAYS
- CORBELS
- PEW ENDS

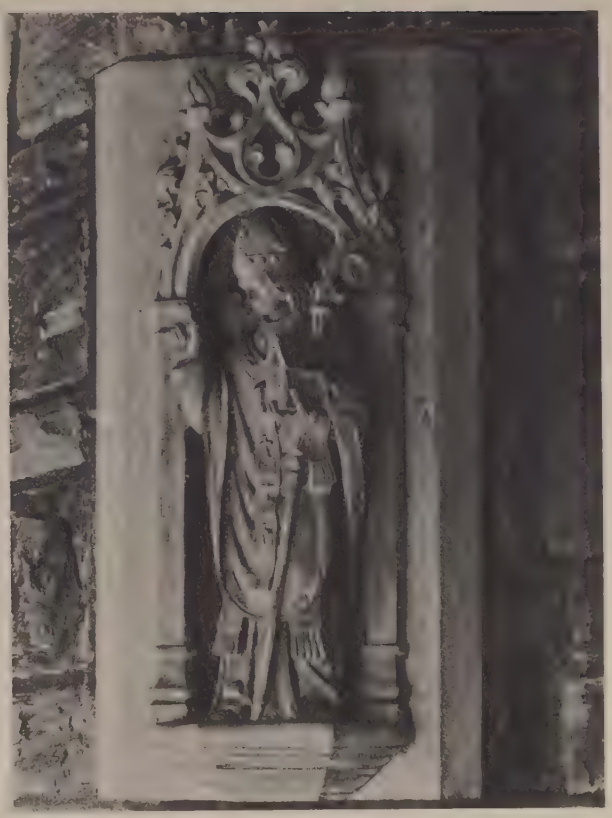
H. W. Rowe

Day & Klauder

Cram, Goodhue & Ferguson; Howard Shaw

Cass Gilbert

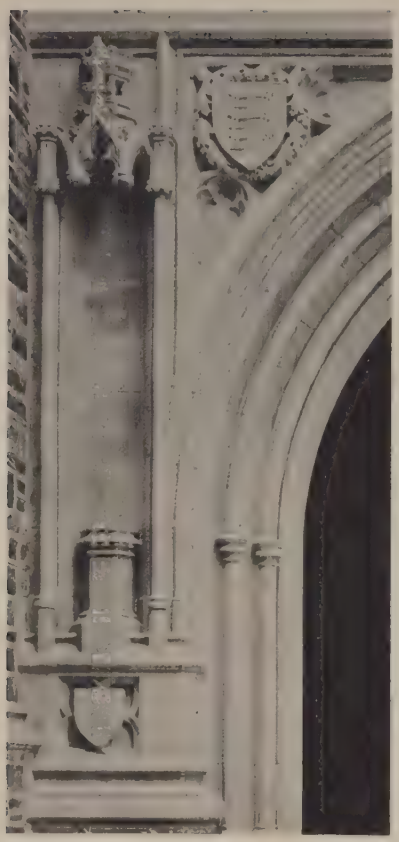
James Gamble Rogers



H. W. Rowe

Henry C. Pelton; Allen & Collens

James Gamble Rogers



Day & Klauder

Cram, Goodhue & Ferguson

Bertram G. Goodhue

Thomas Nash

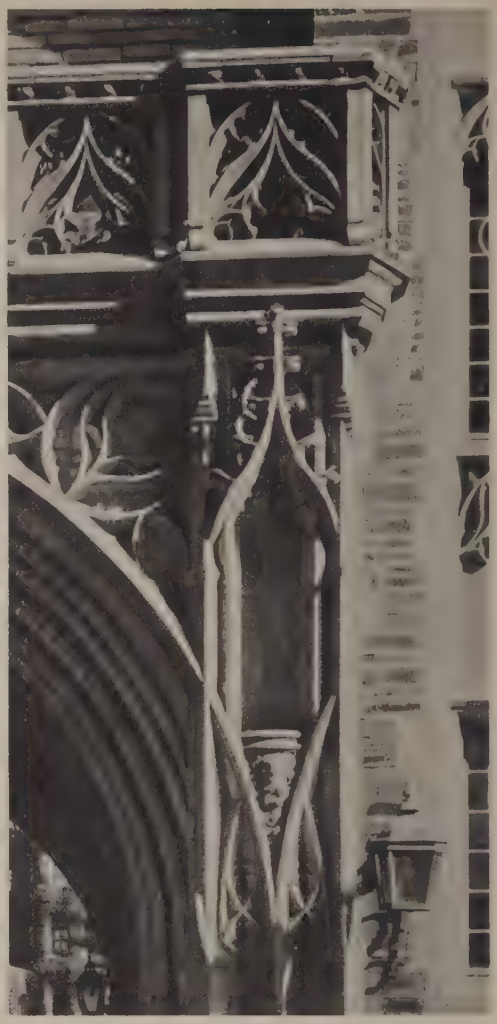
Cram, Goodhue & Ferguson

James Gamble Rogers

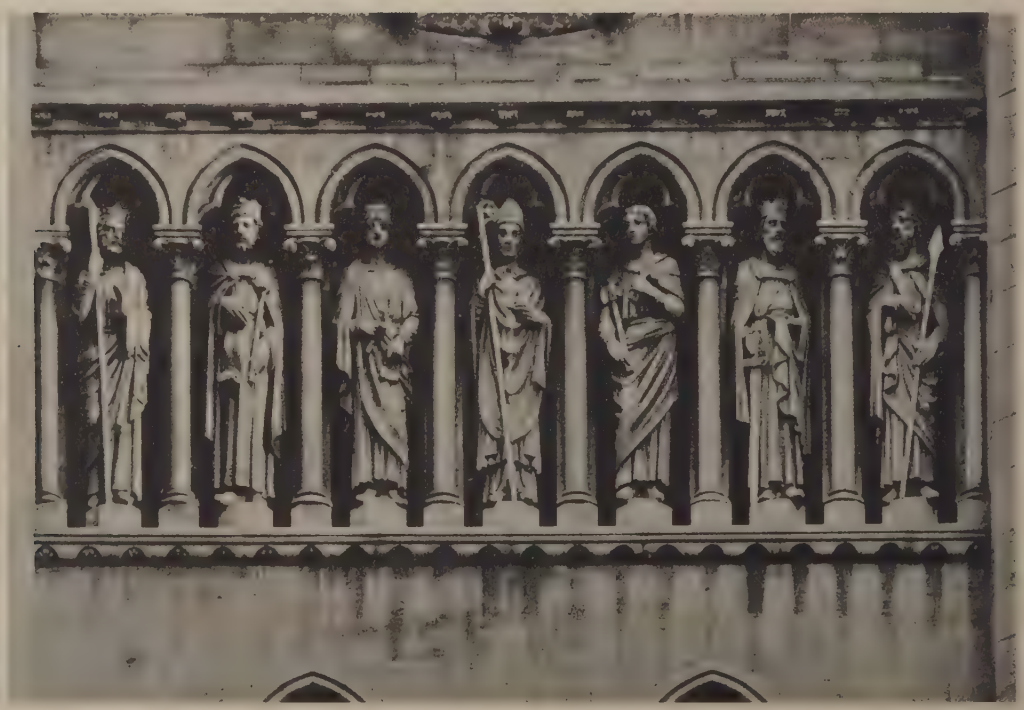
Henry Otis Chapman

Cram, Goodhue & Ferguson; Howard Shaw

Henry C. Pelton; Allen & Collens



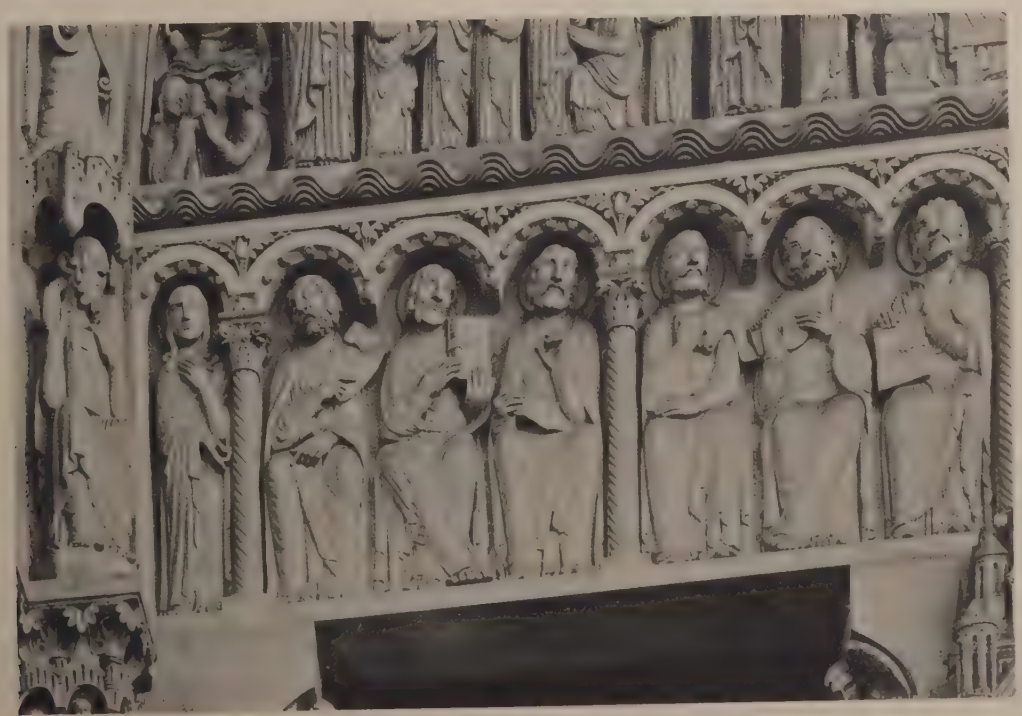
Charles Z. Klauder



Henry C. Pelton; Allen & Collens

Robert J. Reiley

Thomas P. Barber



Henry C. Pelton; Allen & Collens

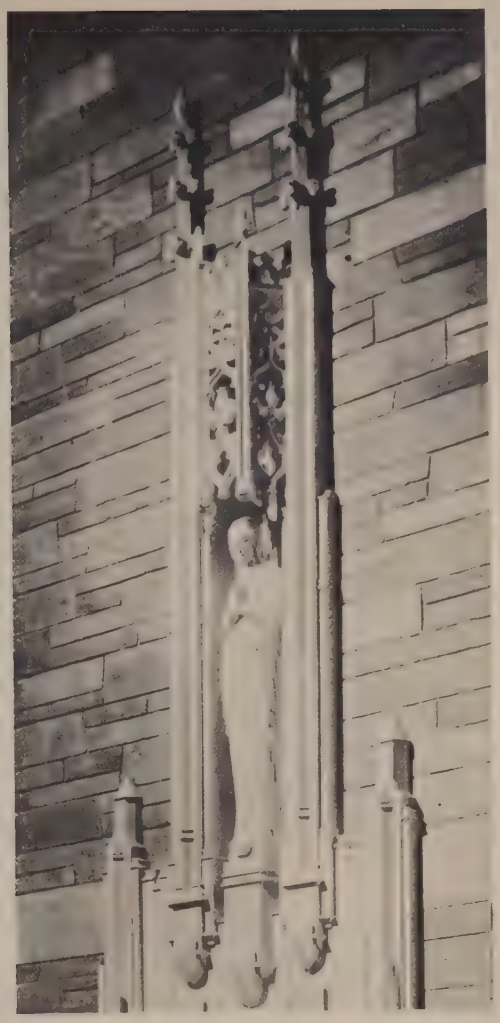
Thomas Nash

Maginnis & Walsh

Cram, Goodhue & Ferguson

F. De Lancey Robinson

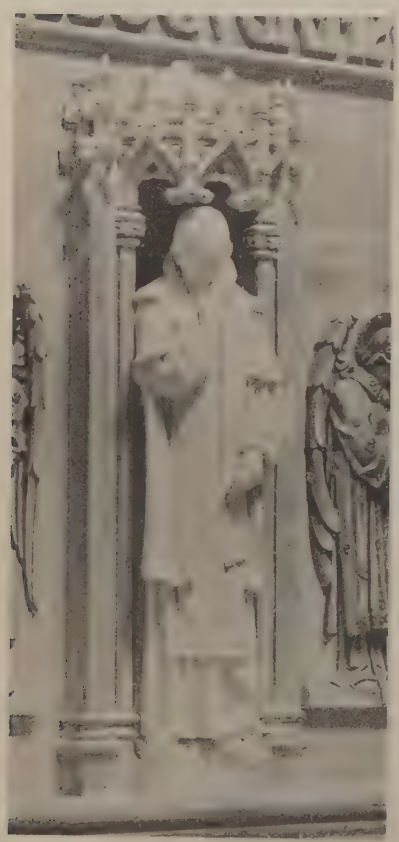
Henry D. Dagit & Sons



Cram, Goodhue & Ferguson

Thomas Nash

Grosvenor Atterbury

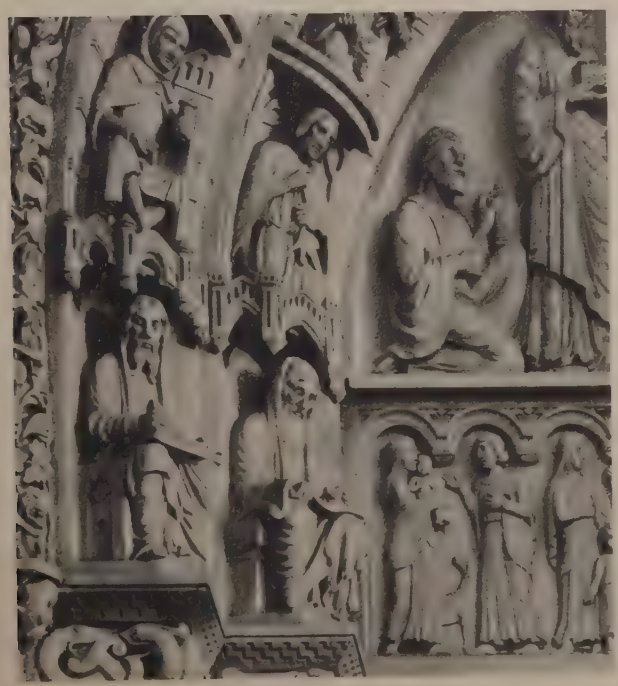


Cram & Ferguson

Henry C. Pelton; Allen & Collens

Maginnis & Walsh

August Noel



Henry C. Pelton; Allen & Collens

Cram, Goodhue & Ferguson

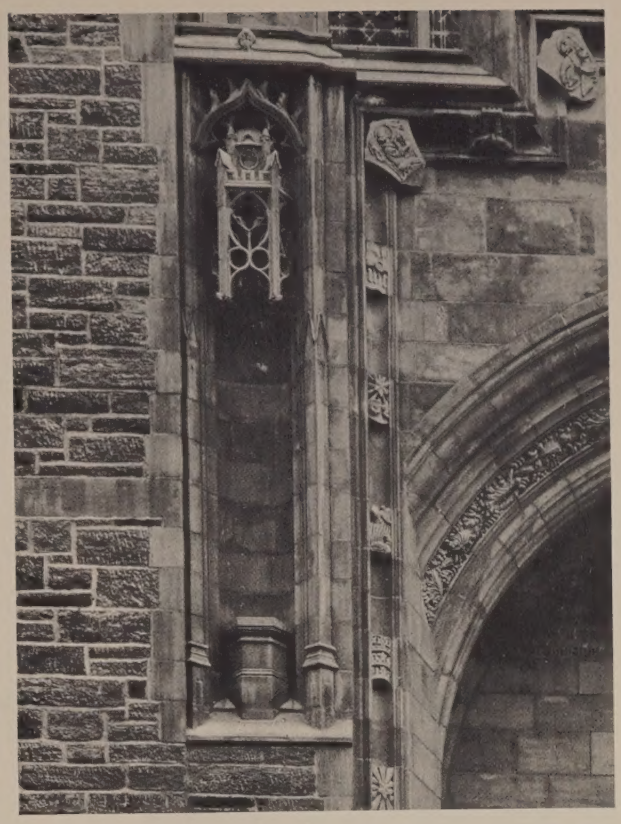
James Gamble Rogers

Edward L. Tilton

Bertram G. Goodhue; G. Goodhue Associates; Walker & Weeks

Charles Z. Klauder

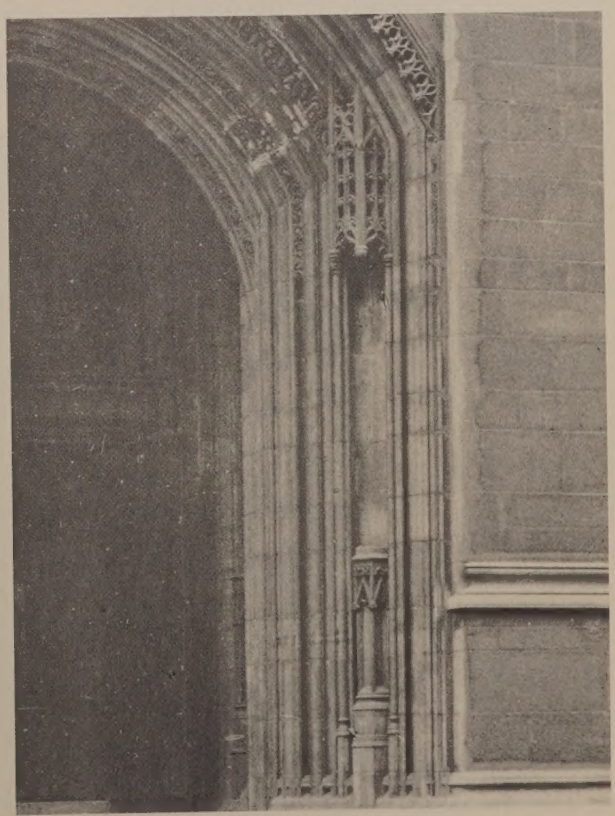
Maginnis & Walsh



Bertram G. Goodhue

Atlee B. & Robert M. Ayres

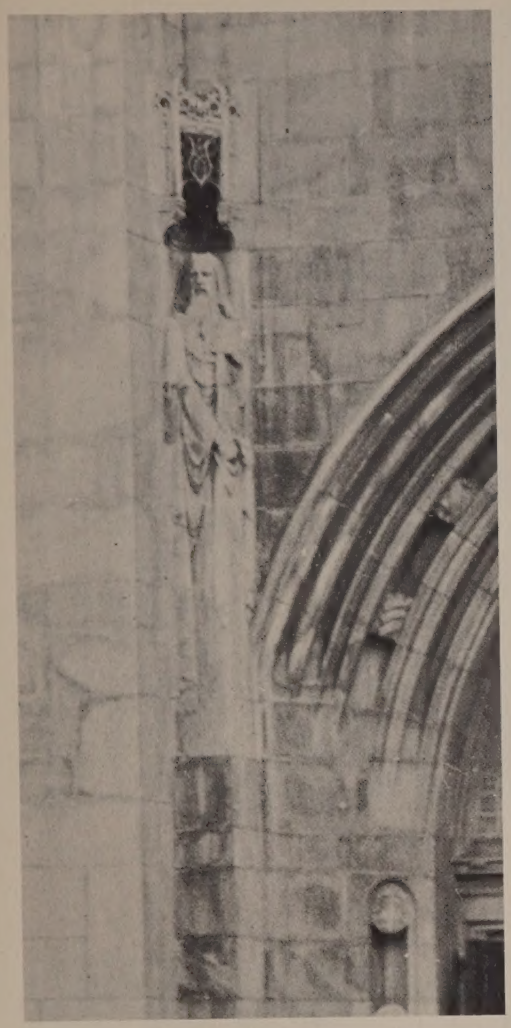
Cram, Goodhue & Ferguson



Henry C. Pelton; Allen & Collens

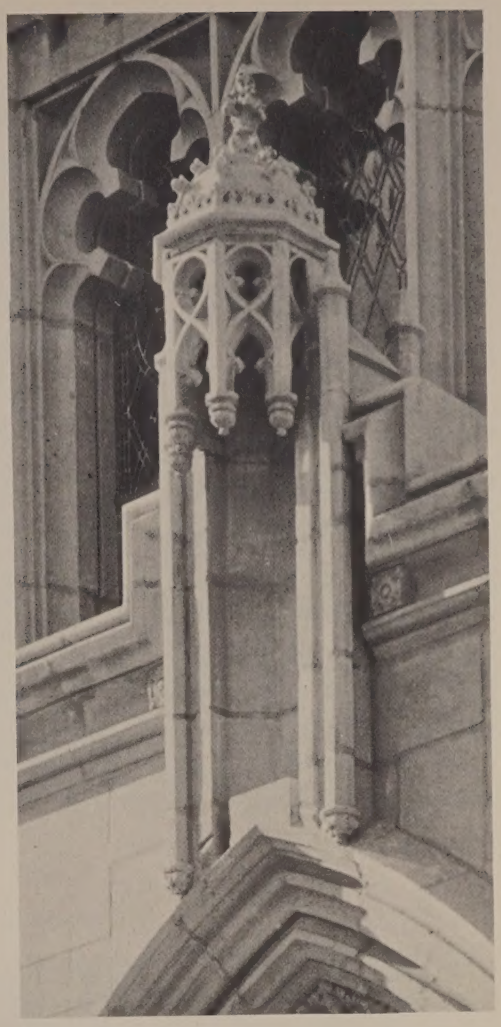
Cram & Ferguson

Thomas Nash; Karl Bitter



Thomas P. Barber

Mayers, Murray & Phillip



Rosario Candela

Richard Garrison

A detail of the northeast corner, Worcester Memorial Auditorium, Worcester, Mass. L. W. Briggs Company, Frederic C. Hirons, associate architects